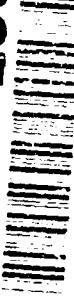


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contemporary reading for the professional

Keeping in Touch: The Mail, Comment Cards and Reader Surveys

Mail call has always been important to American soldiers. In faraway and sometimes dangerous places, a letter from home or an occasional package of homebaked cookies is a strong link with "the world," making the hardest situation much more bearable. During the Gulf War, the mountain of mail became legend, straining delivery systems and generating news stories and congressional inquiries. Mail choked delivery systems but was an accurate barometer of public support and absolutely essential to high morale.

For *Military Review* (MR), mail call is equally important. We get our fair share of junk mail and receive an occasional crank letter. Still, the mail is our umbilical cord to reality, keeping us in touch with our readers, who you are, what you think and what issues are important to you. Several simple mechanisms encourage feedback, not the least of which is the comment card bound in each issue. We read these very carefully and regularly get article or theme ideas from them. To gain a certain amount of formal feedback, however, we put together a reader survey last summer to gather your thoughts in a systematic and verifiable way. To those of you who took the time to complete and return the survey, thanks. While we could never get all the responses we would like, you who did respond have helped shape future issues of the journal.

Fifty-five percent of survey respondents were Active military; 23 percent were Reserve or National Guard and the remainder, retired military or civilians. Seventy-two percent of respondents were captains through colonels, basically the audience for whom MR is published. Perhaps demonstrating that those who pay for MR felt more compelled to participate in the survey, 56 percent of respondents were paid subscribers. Not surprisingly, we conclude that we are reaching our target audience. You told us the mix of authors, that is, general officers, field grades, company grades and civilians, was about right. An exception was noncommissioned officers. We will continue to solicit authors of all grades but, at the same time, we encourage sergeants to write for the journal.

The vast majority of you read between seven and 12 issues per year, and you read each issue the same month it comes out. You read the articles more frequently than you do the book reviews and other back-of-the-book features and gave MR very high marks for being interesting, informative and stimulating. You further told us that we are accomplishing our goal of increasing readers' professional knowledge. We are gratified to know that fully 60 percent of you keep your copies for future reference. By the same token, we appreciate the rest of you who pass your copies on to other readers.

Your desires for future issues included more on operational art, values and ethics, and the human element of war. Taking this into account, the January issue touched all three subjects. You want more on low-intensity conflict/special operations forces (scheduled for April 92); leadership (August 92); role of Reserves (September 92); command and control (October 92); joint operations (November 92, also the topic for the 1992 MR writing contest); and US military posture and regional assessment (December 92). Strategic planning, tactics and military history round out the subjects of which you want more. We do not have upcoming theme issues planned around these three areas, but we will seek, as wildcards, articles on these subjects.

A few reader surveys are still trickling in. Each one reinforces why staying in close contact with you is important. As busy as we can become, especially around deadline day, we can always spare the time to read a comment card or talk on the telephone about an article idea. We welcome your ideas and take very seriously your criticisms so that MR accurately reflects who you are, what you think and what is important to you. After all, serving you and, thereby, the Army, is why we are in business.

SFR

DOCTRINE

A Guide to the Future

General Gordon R. Sullivan, US Army

The effort to revise Army doctrine has begun and the emerging doctrine is beginning to take shape. Army chief of staff General Gordon R. Sullivan offers his views on the critical guiding role of doctrine, especially in this time of change. He urges all to assist in this vitally important process.

ON 10 MAY 1940, the German army attacked westward into the Low Countries and Northern France. The German attack emphasized maintaining the initiative through mobility and decentralized command and control. The Germans' aim was to defeat their opponents by fracturing their command structure. The plan called for avoiding the extensive defenses of the Maginot Line and rapidly breaking through into the Allies' rear area.

The French army that met the Germans in 1940 was prepared for a war in which the defense would dominate.¹ French doctrine focused on massed firepower, controlled by a centralized command structure. They believed that the key to battlefield success was a very methodical preparation that would synchronize all the firepower available at the decisive time and place. Only senior headquarters were thought capable of such coordination.

When the German and French armies met that spring, two very different doctrines clashed. Both armies had spent the years after World War I adapting. The German approach was innovative, reflecting technological advances in mechanization and command and control. In comparison, French doctrine was relatively stagnant; it remained fixated on the defense. This mismatch of warfighting doctrines was played out on the battlefield with clear results. The Germans attacked on 10 May, reached the English Channel in 10 days and entered Paris on 14 June. It was a decisive victory.

Like the French and German armies after World War I, America's army today is at a watershed. We stand between the Cold War past and the Army of the future. After our recent victories in the Cold War, Panama and the Gulf War, we are reshaping ourselves to meet the demands of a dramatically different world. Our doctrine will influence the shape of the post-Cold War Army and our ability to provide America decisive victory on future battlefields.

The purpose of this article is to describe, in general terms, the revision of Army doctrine that is now under way. The intent is to promote

When the German and French armies met . . . two very different doctrines clashed. Both armies had spent the years after World War I adapting. The German approach was innovative, reflecting technological advances in mechanization and command and control. In comparison, French doctrine was relatively stagnant . . . This mismatch of warfighting doctrines was played out on the battlefield with clear results.

We cannot afford to repeat the French experience . . . we must avoid preparing for the wrong type of war. Our fellow citizens are counting on us to keep our doctrine relevant and sound.

understanding and participation in the doctrine debate. As we develop the doctrine of the future, much is at stake. We cannot afford to repeat the French experience of 1940; we must avoid preparing for the wrong type of war. Our fellow citizens are counting on us to keep our doctrine relevant and sound.

The Central Role of Doctrine

Doctrine is the set of principles the Army uses to guide its actions in support of national objectives. It is authoritative, but requires judgment in application.² Doctrine is the *how* in the way the Army expects to conduct its operations; it is the accepted way we conduct our missions. It is so widely understood that it is an important part of our institutional culture, a part of the fabric of the Army.

In this period of change, today's Army focuses on a common vision of the future:

- America's Army will be a Total Force trained and ready to fight, serving our nation at home and abroad.
- It will be a strategic force capable of decisive victory.

Doctrine plays a central role in meeting two of the challenges we face as we move toward this vision.

First, doctrine is key to maintaining our war-fighting edge over our opponents—the type of advantage we demonstrated in operations *Just Cause* and *Desert Storm*. Maintaining the edge requires that we keep in proper balance the six imperatives that are the basic foundation of our

Since the opening of the Berlin Wall . . . the structure of the international system has been transformed. The bipolar world of the Cold War is now history and a less stable multipolar structure is forming in its place. This new structure holds implications for when, where and how armed conflicts might occur. Threats are less well defined but still prevalent and dangerous.

Army. The edge is the combined effect of quality people, trained to razor sharpness, outfitted with modern equipment, led by tough, competent leaders, structured with an appropriate mix of forces by component and type, and employed according to up-to-date doctrine. The edge we hold today is the product of 20 years of work, including the development of our current AirLand Battle doctrine. For commanders in the field, doctrine provides a common template that serves as a starting point for the conduct of operations. As we work today to maintain the edge, our doctrine must adapt to changes in our environment.

Second, doctrine plays a significant role in reshaping the Army for the future. Doctrine guides the Army in fulfilling its statutory mission found in Title 10 of the US Code: "...organize, train and equip forces for the conduct of prompt and sustained combat operations on land . . ." For the staffs at Department of the Army and the US Army Training and Doctrine Command (TRADOC), in particular, doctrine provides the framework for institutional changes within the Army—changes to the structure of our organizations, to training and leader development pro-

grams and to the equipment we develop and procure. In short, revised doctrine is the catalyst for change across the Army.

Organization theory provides some insights into the role of doctrine. All organizations attempt to reduce uncertainty and complexity. This is done by establishing standing operating procedures (SOPs), a concept the Army applies at all levels. These accepted ways of doing business unify the organization so that various subordinates can work together effectively when performing routine functions. Uncertainty and complexity are reduced because the organization has a guide for conducting its business. Doctrine shows how the parts of the Army fit together to contribute to our basic function—warfighting. In this way, doctrine might be considered the Army's highest-level, most general SOP.

The central role of doctrine can be illustrated by drawing an analogy comparing the Army to an orchestra.³ The concept of harmony organizes and synchronizes an orchestra so that the many disparate elements can produce a coordinated, effective result—harmony is the orchestra's doctrine. For any production, the orchestra begins with a common understanding of the doctrine of harmony, then adapts to fit the particular musical score as directed by the conductor. Similarly, the Army's doctrine is the starting point for all our operations. In a particular situation, the Army commander applies doctrine to bring his elements into harmony. Army doctrine must be flexible enough to enable the commander to improvise to meet the requirements of the specific case. Doctrine unifies the disparate elements of the Army toward a common, effective result—decisive victory.

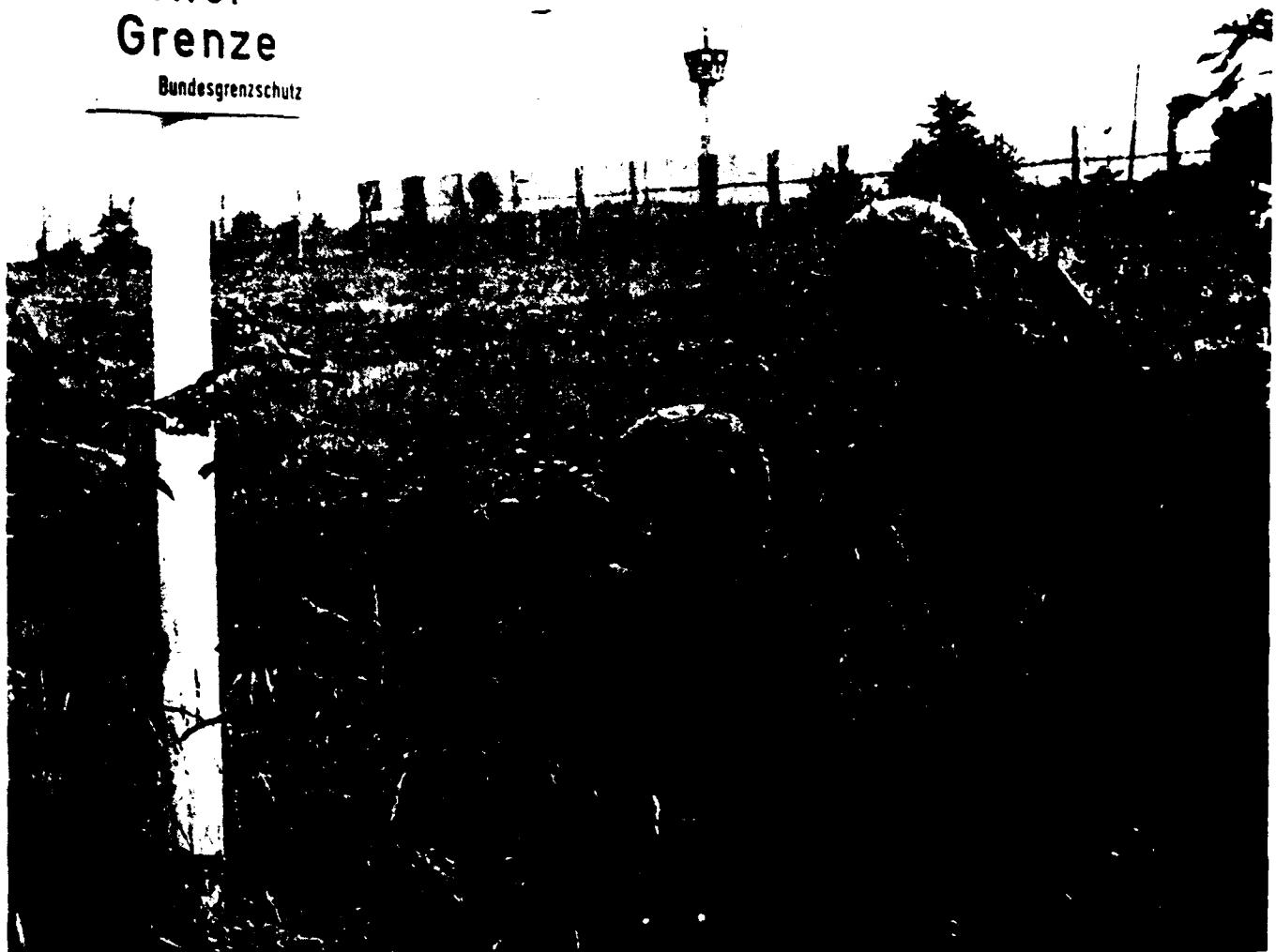
The Changing Environment

In light of the impressive battlefield victories of the past two years, why should the Army now revise its doctrine? AirLand Battle doctrine has served us well; why fix something that is not broken? The rationale for revising our doctrine is simply that some of the major factors on which current doctrine is based have changed. The current AirLand Battle doctrine reflects the

Halt! Hier Grenze

Bundesgrenzschutz

US soldiers observing movement along the inter-German border, circa 1975.



The rationale for revising our doctrine is simply that some of the major factors on which current doctrine is based have changed. The current AirLand Battle doctrine reflects the world and the Army of the last 20 years, a period dominated by the Cold War. Now our doctrine requires updating to keep pace with the changing environment.

world and the Army of the last 20 years, a period dominated by the Cold War. Now our doctrine requires updating to keep pace with the changing environment.

The determinants of Army doctrine are in two categories: factors external to the Army and factors within the Army. Today, some factors are relatively constant, while others have seen the most dramatic shifts since World War II.

External determinants of Army doctrine begin with the international system. Here change has been fundamental and rapid over the past

two years after decades of continuity. Since the opening of the Berlin Wall in November 1989, the structure of the international system has been transformed. The bipolar world of the Cold War is now history and a less stable multipolar structure is forming in its place. This new structure holds implications for when, where and how armed conflicts might occur. Threats are less well defined but still prevalent and dangerous.

The nature of the United States—its political system, economic system, geography and historical experience—plays a role in determining

Army doctrine. These factors are relatively constant and have an enduring influence on our doctrine. America's reliance on the citizen-soldier, the tendency to reduce the Army's strength after wars and a tradition of isolationism all spring from these factors. The fact that the United States is essentially a nation geographically protected from major land-based threats, for example, leads to our doctrinal emphasis on strategic deployability.

Related to the nature of our country is the fact that public support affects our Army's doctrine. We are America's Army—a unique blend of

Stinger observer directing gunner onto a target.



We are America's Army—a unique blend of regulars, militia, reservists and civilians who reflect the values of the nation we serve. The principle of civilian control, the Total Army policy and the all-volunteer policy ensure our linkage to the public remains strong . . . and our doctrine must reflect these values.

regulars, militia, reservists and civilians who reflect the values of the nation we serve. The principle of civilian control, the Total Army policy and the all-volunteer policy ensure our linkage to the public remains strong. The values of America are the values of America's Army and our doctrine must reflect these values.

The Army's budget also influences doctrine. In order to be realistic, doctrine must take into account that we are now in an period of reduced funding. Doctrine is more than an unconstrained concept; it must reflect the resources available so that the doctrinal methods can be executed on the ground.

The factors above combine to influence the new National Security Strategy, the supporting National Military Strategy and the emerging Joint Doctrine. All of these in turn become factors for Army doctrine. The new strategy has four foundations: nuclear deterrence, forward presence, crisis response and reconstitution. These are the national requirements the base force is designed to meet. These national documents provide a general framework for Army doctrine in the post-Cold War period. These new realities will produce an Army that will be a smaller, more flexible force, regionally oriented and based largely in the Continental United States. Joint operations are the norm.

Technology—a factor that is constantly changing—has an impact on the nature of warfare and, therefore, on doctrine. We are on the threshold of a new era that might be termed the post-industrial period. Over the past 100 years, really since the Civil War, warfare has been dominated largely by the might of heavy industry. A nation's mobilized manpower potential, its ability to mass-produce weapons and the use of steamroller tactics characterized this period. Today, warfare is dependent more on the microprocessor than the steel mill. The increased importance of the computer—in the nose of a weapon, in an intelligence sensor, in a command and control device or in a training simulator—is evident. The battlefield has expanded across the dimensions of speed, space and time. Today's fights are likely to be at a faster tempo, to cover



Special Forces soldier instructing an Ecuadorian commando in the use of an M16A1 rifle with M203 grenade launcher, August 1986.

As the last several years have shown, we can expect to operate across the entire continuum of military operations anywhere in the world—from fighting forest fires to fighting a heavily armed enemy, from building roads to assisting refugees, from conducting counterdrug operations to conducting counterinsurgencies. Our doctrine must take into account this breadth of operations.

more ground, and to be more continuous—day and night in all weather. The implications for our doctrine are wide-ranging.

Several factors internal to the Army also influence doctrine. First, experience affects doctrine. Past experiences are the birthplace of future doctrine. To the extent that the recent operations in Panama and the Persian Gulf reflect new realities, we can gain valuable insights for revising our doctrine. The problem with "lessons learned," however, is that some are not lessons and others are never learned. Incorporating the lessons of the past into future doctrine requires balance and judgment. History is replete with examples of armies that learn only in defeat. Good armies, like today's US Army, must learn in victory as well.

Another internal factor is the Army's requirement for continuity. This requirement springs

from the nature of the Army. We are the nation's largest public institution. Even during periods of change, we have a mission to perform—there are no time-outs from readiness. We could be called at any time, so we cannot afford to stop everything to reshape ourselves. We must build on what is already in place. The complexity of what we do as an institution demands careful, long-term preparation. It took 20 years to build the great Army we have today. It takes that long to attain the balance among the six imperatives, to ensure the building blocks that are the foundation of the Army are square and fit together properly. This need for continuity calls for a doctrine that builds on the strengths of our current AirLand Battle doctrine.

These factors, both external and internal, combine to establish the framework around which Army doctrine must be built.

Characteristics of the Revised Doctrine

While the final shape of the Army's revised doctrine will not be set for months, it is possible at this stage to define its broad characteristics. Our doctrine must be *balanced, adaptable and realistic*.

The first characteristic of our revised doctrine is that it must balance the competing demands for continuity and change. As we have seen, the factors that influence doctrine are complex and diverse. Some link us to the past while others point us in new directions.

America's Army must retain our strong links to the nation. This is our heritage and the source of our legitimacy. Our doctrine must reflect this

Our revised doctrine must be realistic. It must be within the realm of the possible, given the facts that the Army is getting smaller, is coming back to CONUS from overseas and is facing declining budgets. Doctrine that does not account for these factors would be irrelevant from the outset.

unchanging reality. The revised doctrine will build on the widely acknowledged strengths of AirLand Battle. For example, the basic tenets of our current doctrine—agility, initiative, depth and synchronization—have served us well and will continue to describe how we conduct combat operations. The tenets will be a source of continuity throughout the revision process.

New doctrine also must accommodate the changing environment. As the last several years have shown, we can expect to operate across the entire continuum of military operations anywhere in the world—from fighting forest fires to fighting a heavily armed enemy, from building roads to assisting refugees, from conducting counterdrug operations to conducting counter-insurgencies. Our doctrine must take into account this breadth of operations. Similarly,

Army doctrine should reflect that future operations will certainly be joint and will most likely be conducted with allies or coalition partners. The shifting environment also points to the need for doctrine to cover an operation from deployment all the way to redeployment. The phases of an operation are inextricably linked, so it is not enough to address only what happens once a force arrives in theater.

The second characteristic of Army doctrine is that it must be adaptable. Flexibility is crucial in a strategic environment that is still changing. No one could have predicted the changes we have seen since the opening of the Berlin Wall. No one could have predicted we would fight in Panama and then again in the desert. In this era, doctrine must not be focused on a particular region or level of conflict. The unknown variables surrounding our future operations far outnumber the known variables. We cannot know with any certainty who our enemies or our coalition partners may be, or when or where we will be operating. Doctrine must be specific enough to be useful in a particular case, yet adaptable to the wide range of possible operations we face. Flexible doctrine serves the commander as the framework around which he can improvise.

Finally, our revised doctrine must be realistic. It must be within the realm of the possible, given the facts that the Army is getting smaller, is coming back to CONUS from overseas and is facing declining budgets. Doctrine that does not account for these factors would be irrelevant from the outset.

Another historical example illustrates these characteristics. For more than 20 years after the French Revolution, the French army dominated warfare in Europe. At the root of this success on the battlefield was a doctrine that was balanced, adaptable and realistic. More than any other European army of that period, the French were innovative in adapting to changing conditions. Their doctrine featured new ideas about synchronizing combined arms and took advantage of technological advances, especially in artillery. They gained an agility advantage over their opponents with the concept of using dispersed col-

umns to move rapidly to a critical point before converging for the decisive fight. Their doctrine resulted in the new structure of divisions and corps, in tactical innovations such as massed artillery and the use of skirmishers, and in advances in command and control. The French doctrine broke the mold of the previous century and changed forever the nature of warfare.¹

The Road Ahead

The process of revising Army doctrine is now under way. On 1 August 1991, TRADOC and the Air Force's Tactical Air Command jointly published the pamphlet *AirLand Operations: A Concept for the Evolution of AirLand Battle for the Strategic Army of the 1990s and Beyond*. This conceptual paper started the structured revision process. Today, a select group of officers at Fort Leavenworth is leading the effort to revise US Army Field Manual (FM) 100-5, Operations. This manual will lay the foundation for other doctrinal publications. The process of revising FM 100-5 is described well in Colonel James R. McDonough's article, "Building the New FM 100-5: Process and Product," in last October's *Military Review*.⁵

Doctrine is at the heart of our Army; its impact is felt in every corner of the institution. Revising our doctrine to maintain crucial links to our past while adapting to the new realities of the world is an Armywide process. We all share in the challenge to ensure we arrive at a doctrine that balances continuity and change, is adapt-

The battlefield has expanded across the dimensions of speed, space and time. . . . The revised doctrine will build on the widely acknowledged strengths of AirLand Battle. For example, the basic tenets of our current doctrine—agility, initiative, depth and synchronization—have served us well and will . . . be a source of continuity throughout the revision process.

able and realistic. Participation in the process is an important contribution to the future of the Army and our continued ability to meet the demands of the nation. I encourage you to join the discussion by thinking, reading and writing about our doctrine.

The Total Army is looking to the future and shaping its destiny. There are some who do not appreciate the magnitude of the changes the Army is making; there are some who believe that the future Army will be simply a smaller version of the Cold War Army—that we will end up doing business as usual on a reduced scale. They are wrong! The Cold War is over—victory was achieved. Now we are changing in fundamental ways to adapt to the new world in which we live. We are moving out toward our vision of the Army of the future. Doctrine guides us on that journey. **MR**

NOTES

1. Robert A. Doughty, *The Seeds of Disaster: The Development of French Army Doctrine 1919-1939* (Hamden, Connecticut: Archon Books, 1985).
2. Department of Defense, *Dictionary of Military and Associated Terms* (Washington, DC: US Government Printing Office, 1986), 118.
3. Doughty, 7-8.

4. Donald D. Howard, "Napoleon and the Transformation of Warfare," in *Napoleon and America*, edited by Robert B. Holtman (Pensacola, Florida: Perdido Bay Press, 1988), 34-99.
5. James R. McDonough, "Building FM 100-5: Process and Product," *Military Review* (October 1991): 2-12.

General Gordon R. Sullivan is chief of staff of the US Army. He received a B.A. from Norwich University, and an M.A. from the University of New Hampshire. He has served in a variety of command and staff positions in joint and allied assignments in the United States, Europe, Vietnam and Korea, including deputy chief of staff for operations and plans and vice chief of staff of the Army, Washington, D.C.; with the NATO staff as deputy chief of staff for support, Central Army Group; deputy commandant of the US Army Command and General Staff College, Fort Leavenworth, Kansas; and commanding general, 1st Infantry Division, Fort Riley, Kansas. His article, "A Trained and Ready Army: The Way Ahead," appeared in the November 1991 issue of *Military Review*.



JOINT WARFARE

The American Way of War

Colonel Peter F. Herrly, US Army

A significant change in the doctrine of the US Armed Forces occurred with the publication of Joint Publication 1. The author describes that vision and some of its attendant implications for the Army and its fellow services. He then looks at the aims of Joint Publication 1 and how it will help shape attitudes among the military leaders concerning the value of joint warfare.

SINCE THE BEGINNING of recorded military history, warfare has been punctuated by bursts of doctrinal change, grounded in contemporary technology and geopolitical circumstance. Such doctrinal evolutions drive advances in strategy and tactics that often profoundly influence the course of battles, campaigns and wars. Today, a significant change in the doctrine of the US Armed Forces is underway, comparable perhaps to major doctrinal advances of the past. This doctrinal evolution involves the recognition that joint warfighting is the preeminent American way of war.

Armed forces of major nation-states tend to develop distinctive operational styles. The Roman way of war uniquely suited the objectives of the Roman state, as the maritime operational art

of the Royal Navy (including the expeditionary use of the Royal Marines and British army) suited the strategic requirements of the British Empire. A distinctive American style of war, foreshadowed in previous US military campaigns, has now fully emerged. That style is joint, integrating the unique capabilities of each service under the leadership of powerful joint force commanders. This joint operating style, embracing the use of overwhelming and discriminate force, rapid operating tempo and the exploitation of advanced technology, has led to a new scale of military effectiveness. This American way of war focuses on joint campaigns—seamless operations from air, land, sea and space, operating with overwhelming force from every conceivable dimension and direction to shock,



disrupt and rapidly defeat opponents. Such effectively integrated joint forces expose no weak points to the enemy, but find and attack enemy weak points with devastating precision and power. A definitive vision of this way of war is presented in Joint Publication (Joint Pub) 1, *Joint Warfare of the US Armed Forces*, a slender volume developed under the guidance of the chairman of the Joint Chiefs of Staff (JCS). This article describes that vision and some of its attendant implications for the US Army and its fellow services.

Though American strategic and geographic circumstances have often required the mutual and effective action of the various services in America's conflicts, the record of such joint operations is mixed. Historically, there have been strong impediments to effective joint American military action. The US Constitution provides that the president is the only common commander of the military services; prior to 1947, the separation of the services was embodied in a cabinet structure with separate War and Navy departments. Furthermore, the constitutionally mandated involvement of the Congress as an independent player in providing resources to defend the national security reinforced the development of powerful services, "with distinct traditions, doctrines, 'cultures,' —and lobbies! Nevertheless, though never operating together perfectly, the American military has usually operated jointly at least better than the enemy. Yorktown, Veracruz, Vicksburg, Santiago, the Solomons, Normandy and Inch'on recall decisive campaigns with commanders who worked together more effectively than their defeated opponents, although subject to doctrinal and organizational impediments to joint action.

But this tradition of joint victories has often been neglected by the collective conceptual "world view" of the Armed Forces. This neglect stems in part from the way military history is conceived, written and taught, as manifested by the existence of superb service institutions of military history but no comparable organization dedicated to the study of the joint campaigns and battles that have so often been the linchpins of

American military success. The issue boils down to perspective. From a land perspective, Yorktown may not be seen as meriting the title of a campaign, appearing instead as a straightforward siege. From a naval view, Yorktown presents a

Historically, there have been strong impediments to effective joint American military action. . . . The president is the only common commander of the military services; prior to 1947, the separation of the services was embodied in a cabinet structure with separate War and Navy departments [and Congress is mandated] as an independent player in providing resources.

rather unremarkable action of the French navy. From the joint perspective, Yorktown represents a critical interaction of land and sea forces, brought about with great difficulty and daring by George Washington and Comte de Rochambeau. This interaction was the key military factor that made Yorktown the decisive campaign for American independence.

Despite many shortcomings, joint operations proved indispensable to US military success in most conflicts that followed American independence, culminating in an unprecedented degree of joint teamwork and operational art by the end of World War II. Unfortunately, after 1945 the pressures of declining budgets and a temporarily vanished threat ushered in some of the worst interservice wrangling in the history of the republic.

Although the superb joint operational artists of World War II gradually departed the Armed Forces, the legacy of commanders such as Dwight D. Eisenhower, Chester Nimitz and Alexander Vandegrift persisted. The retention of so-called unified commands (because of the contemporary perception that "joint" was too weak a word) served to keep alive the idea of a single warfighting direction for the action of the US Armed Forces. The establishment of the

An MLRS round streaks toward Iraqi positions during one of the many "artillery raids" conducted before *Desert Storm's* ground offensive. The MLRS, ATACMS and Apache all figure into an interdiction arena traditionally dominated by Air Force, Navy and Marine aviation assets.



The Army can no longer simply observe Marines fret about preserving assets needed for the Marine Air-Ground Task Force, the Navy worry about splitting assets between defense of the fleet and joint force strike operations, and the Air Force concern itself with the necessities of centralized, flexible management of air power.

Now for the first time, the Army has significant assets and doctrinal imperatives at stake in that area where the Armed Forces have seen fiercely contested doctrinal disputes for 50 years and more.

sometimes maligned JCS as a permanent body at least increased focus on strategic and operational war planning and even produced some joint doctrine—for instance, the important 1985 agreements (put to such good use in the Gulf War) that defined joint force air component commanders and established ground rules for the use of Marine air in the joint environment. In 1986, the Department of Defense Reorganization Act gave a major impetus to joint operations. The act strengthened the authorities of the JCS Chairman, (notably for the focus of this article, in the realm of joint doctrine), resulted in a stronger joint staff and increased the authority of the commanders of the unified and specified commands (or "combatant commands" as they are now more properly termed).

The impact of these changes was evident in the Panama and Persian Gulf operations in 1990 and 1991. The liberation of Kuwait was the most effective, fully articulated US joint campaign since 1945. Indeed, the term "campaign" as the unifying focus linking the battles and engagements of a joint force to national strategic objectives had been reintroduced into joint doctrine (by Joint Test Pub 3-0, the joint operations manual) only seven months prior to Iraq's invasion of Kuwait. The concept was nevertheless fully exploited by the US Central Command's war planners. Despite the casual use in press conferences of the terms "air campaign" and "ground campaign," *Operation Desert Storm* was a single joint campaign, conceived and executed by the theater commander and exploiting the inte-



Continental troops attacking a key British redoubt during the siege of Yorktown, 14 October 1781.

The issue boils down to perspective. From a land perspective, Yorktown may not be seen as meriting the title of a campaign, appearing instead as a straightforward siege. From a naval view, Yorktown presents a rather unremarkable action of the French navy. From the joint perspective, Yorktown represents a critical interaction of land and sea forces, brought about with great difficulty and daring by George Washington and Comte de Rochambeau.

grated action of available air, land, sea, space and special operations forces.

Thus, the timing is perfect for Joint Pub 1. The opportunity beckons to capitalize on the current momentum for joint action, to describe and codify, as it were, the elements of the new way of war so evident in these recent operations.

Joint Pub 1 aims first at helping shape attitudes among the leaders of the US Armed Forces concerning the value of joint warfare. To this end, the publication discusses the nature of modern war and the elements that make joint action essential to victory: geography (the necessity to be able to project US military power, which is done jointly), technology (forces on land, at sea, and in the air and space reinforce and complement each other in unprecedented fashion), and the pace of events (joint teams

must now be trained and ready prior to conflict). The publication then develops basic military values as they apply to joint teamwork, reinforcing the central theme that "joint warfare is team warfare."

Joint Pub 1 also presents a broad doctrinal foundation. It sets forth the concepts that govern the joint action of the US Armed Forces at the strategic and operational levels of war, discussing the fundamental applications of the principles of war in the joint arena, then laying out the characteristics and supporting capabilities of the unifying focus of US military operations, the joint campaign. Solidly grounded in US military history, Joint Pub 1 looks firmly to the future, setting out the unifying paradigms of the US Armed Forces. The concepts in Joint Pub 1 are intended to influence all joint doctrine

and help cement the mutual and effective teamwork of the Armed Forces.

This is not to say that all will be smooth sailing in the sometimes uncharted waters of joint doctrine. As the joint staff, services and combatant commands collectively work out how to operate

The doctrinal ferment now underway . . . will be partly shaped and affected by the profound advances in joint doctrine spearheaded by Joint Pub 1. No service can afford to shape its warfighting doctrine in a single-service, single dimensional framework. Fortunately, the Army's critical relook of FM 100-5 is being conducted in full awareness of the content and direction of joint doctrine.

smoothly together, difficult issues will arise. Currently, one of the most troublesome problems facing joint doctrine developers is the orchestration of lethal effects in what may be termed the "battle interdiction" area (that is, shallow interdiction, beyond the fire support coordination line but still within a ground commander's area of operation—in Army terms the "deep battle"). An irony of the Army's successful new deep battle technological capabilities is that for the first time the Army has assets (Apache, Army Tactical Missile System [ATACMS], Multiple Launch Rocket System [MLRS]) that play powerfully in the interdiction arena—precisely where the tug and pull over Air Force, Navy and Marine aviation assets has caused such difficult and contentious debate in the past among those three services. The Army can no longer simply observe Marines fret about preserving assets needed for the Marine Air-Ground Task Force, the Navy worry about splitting assets between defense of the fleet and joint force strike operations, and the Air Force concern itself with the necessities of centralized, flexible management of air power. Now for the first time, the Army has significant assets and doctrinal imperatives at stake in that area where the Armed Forces have

seen fiercely contested doctrinal disputes for 50 years and more. The inexorable thrust of modern technology has accentuated the overlap and hence the tensions among the services, and placed the Army squarely in the midst of this most sensitive doctrinal debate.

But there is another side of the coin. Technology has made it possible for air, land, sea and space forces to help each other to achieve a state of synergy, where the elements of the joint force are so effectively employed that their total military impact exceeds the sum of their individual contributions. Joint Pub 1 makes it clear that "the battle" (as opposed to the battlefield, which as a term tends to leave sailors and airmen cold) is the joint force commander's, and that only in joint doctrine will solutions to the difficult issues associated with synchronization of joint forces be found. Adjusting the "fit" between forces with different service doctrinal orientations and supporting tactics, techniques and procedures may not be easy. Nevertheless, such issues will be solved. Different points of view are often complementary when brought into the same collective focus—perhaps one of Joint Pub 1's most important insights. The US Armed Forces are also aided by the fact that "someone is in charge": the Joint Chiefs of Staff Chairman, in charge of joint doctrine, joint force commanders in charge of warfighting. Solutions to difficult doctrinal problems such as control of shallow interdiction present themselves more readily through a joint mental orientation:

- The problem (and solution) belongs to the joint force commander, not the various components by themselves.
- The issue involves all air, land, sea, space and special operations forces.
- There is a common perspective that makes it easier to define doctrinal solutions from which the joint warfighter can choose.

There are no zero sum gains and no losers. Certainly, tradeoffs in cherished service positions may be required, but the gain in the combat power of the joint force is the ultimate criterion. Such tradeoffs will also most often be situational, depending not on inexorable "dogma" but on

the informed choices of joint and component commanders and their staffs.

An important implication of this point, stressed in Joint Pub 1, is that the US Armed Forces have a requirement for a new level and type of expertise. That is, in addition to hard-won competence in one's individual service must be added a sophisticated understanding of the combat power represented by other services and, beyond that, how these capabilities are integrated for the conduct of joint (and combined) operations. These broader perspectives have important implications for military training and education in the Armed Forces.

Not only will the concepts embodied in Joint Pub 1 govern the employment of American joint forces, but they should influence the entire range of expert analysis of military affairs, including most specifically military history. Implications for military history curricula in the various military schools of the US Armed Forces and the focusing of resources to the analysis and study of joint operations have yet to be fully developed but will be substantial. The influence of joint warfare might even extend to popular culture. It is difficult to conceive, for example, of a well-done motion picture concerning the Gulf War that would not require support from every military department, as opposed to the support from a single service as has been the case until now!

Last, Joint Pub 1 carries important implications for the future doctrinal development efforts of the individual services. Each service is wrestling with the implications of the post-Cold War era on operational force structure, training plans and doctrine. To take the US Army as an example, the doctrinal ferment now underway pursuant to the ongoing revision of US Army Field Manual (FM) 100-5, *Operations* will be partly

shaped and affected by the profound advances in joint doctrine spearheaded by Joint Pub 1. No service can afford to shape its warfighting doctrine in a single-service, single dimensional framework. Fortunately, the Army's critical relook of FM 100-5 is being conducted in full awareness of the content and direction of joint doctrine. Whatever the next stage of evolution for AirLand Battle, it is safe to predict that disciplined change will be conditioned by the overarching focus of the joint air, land, sea and space warfighting environment of the future.

A final question remains. Under the pressures of a diminished threat and sharply declining budgets, will the services again fall prey to the temptation of a full-scale interservice rivalry and allow the legitimate doctrinal orientations of air, land and sea to become fuel for dispute instead of compromise? The probable answer is no. Though parallels to the late 1940s do exist, many factors are different: the increased power of the chairman, supported by a superbly cooperating Joint Chiefs of Staff and by a talented joint staff with a streamlined process for working joint actions; the central role of joint force commanders as the employer of forces; and the slow but steady realization among leaders of the US Armed Forces that they are all in this together, a world view now constantly reinforced by joint training, exercises, operations and education. Underpinning and supporting all these threads is the common pattern and vision of Joint Pub 1. On its cover is the central theme, "Joint warfare is team warfare." Joint Pub 1 represents a way of war extremely powerful, grounded in common sense, resonant with the American sense of teamwork. The unifying focus and appeal of joint warfare, now enunciated, will shape the future of the US Armed Forces. **MR**

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VII Corps in the Gulf War

Ground Offensive

Lieutenant Colonel Peter S. Kindsvatter, US Army

This is the second of three articles chronicling the actions of VII US Corps during operations Desert Shield and Desert Storm. The first, which addressed the deployment, planning and preparations during Desert Shield appeared in our January issue. Here, the author describes VII Corps' actions during the ground campaign of Desert Storm. The third article will appear in a future issue and cover the corps' post-cease-fire actions.



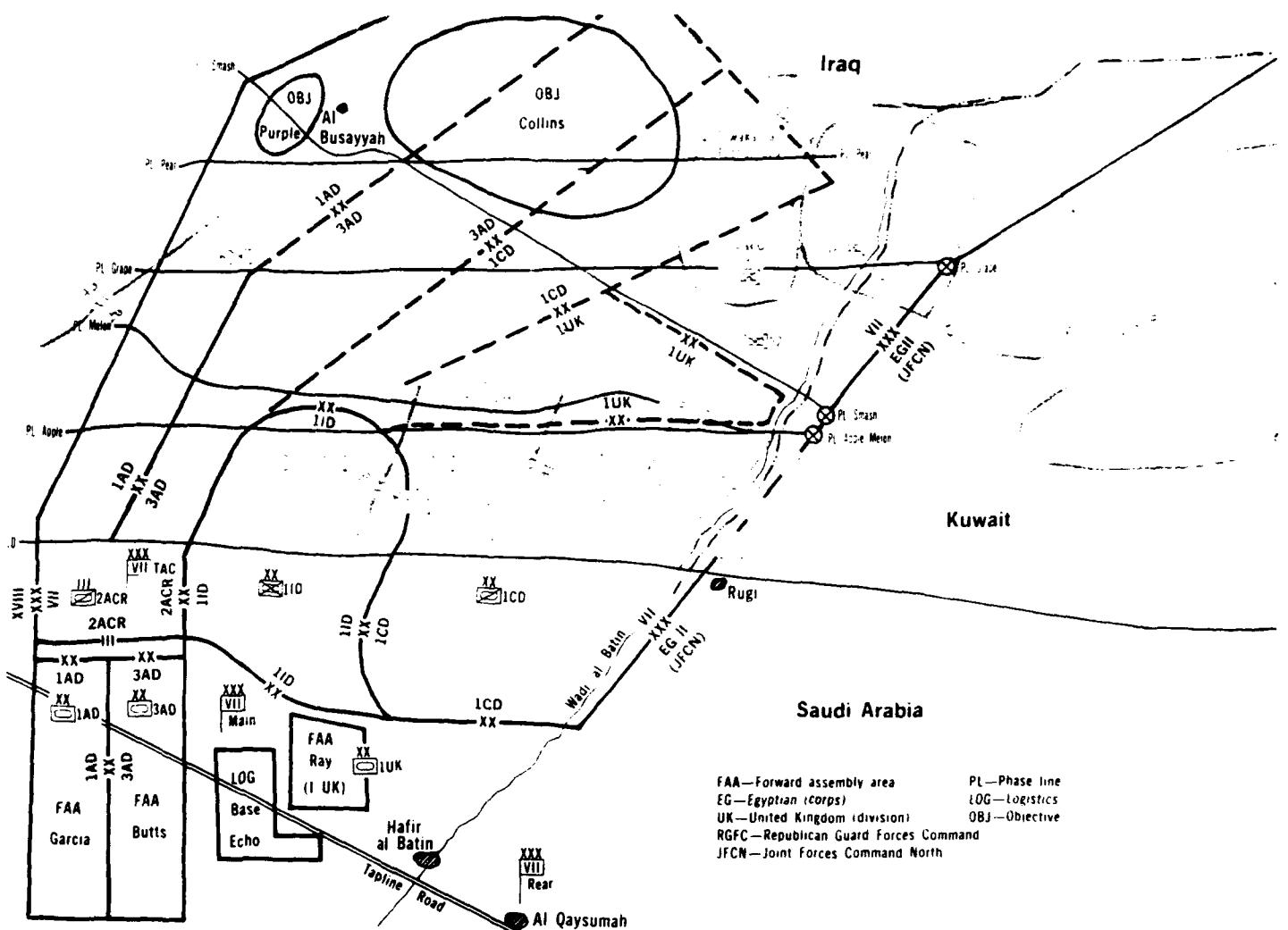


Figure 1. VII Corps and Iraqi Dispositions, 18-23 February 1991

T WAS NOT, of course, a "100-hour war" for the VII US Corps. The corps' main attack commenced at 1500 on 24 February 1991 and stopped 89 hours later, with a cease-fire at 0800 on 28 February.¹ In those 89 hours, the VII Corps drove 260 kilometers; captured 22,000 Iraqi soldiers; and destroyed 1,350 tanks, 1,224 armored personnel carriers, 285 artillery pieces, 105 air defense systems and 1,229 trucks.² This was done at a cost of 47 VII Corps soldiers killed in action and 192 wounded; nine M1A1 tanks destroyed and four damaged; 14 Bradley fighting vehicles destroyed and nine damaged; two helicopters destroyed and three damaged; and nine other vehicles of various types destroyed or damaged.³

There are good reasons for this phenomenal success, but first one must look at what transpired during those 89 hours. By 18 February, the corps had completed its shift westward into final positions. The 2d Armored Cavalry Regiment (ACR) and 1st Infantry Division (ID) occupied sectors along the Saudi-Iraq border (fig. 1). The

1st Cavalry Division (CD) continued to occupy a sector to the east of the 1st ID, but on 23 February, it reverted to Army Forces Command (AFCENT) control as the theater ground reserve. The 1st and 3d Armored divisions (ADs) were arrayed in forward assembly areas (FAAs) south of the 2d ACR and prepared to attack north with the 2d ACR in the lead as a covering force. The objective of this attack was, after enveloping the Iraqi forward defenses, to close with and destroy the Republican Guard Forces Command (RGFC). The 1st British (UK) AD occupied FAA Raw south of 1st ID's sector, ready to pass through the breach in the Iraqi defenses that 1st ID would make and attack eastward. The 2d Corps Support Command (COSCOM) had established log base Echo.

This westward shift to final positions was intended to take place at the last possible minute so as not to forewarn the Iraqis. The ground offensive would start on "G-day" (ground-day), which was projected to be 21 February. However,

last-minute attempts by the Soviets to arrange an Iraqi withdrawal from Kuwait postponed G-day until 24 February, although the Iraqis

Clearly . . . the Iraqis expected a coalition main effort directly against Kuwait and, apparently, ruled out the wider flanking movement that actually occurred. The coalition's enveloping attack achieved tactical and operational surprise against an enemy who had little time or capability to react or reposition forces.

did not make any particular use of this extra time to reposition forces or strengthen defenses.

According to the theater plan, the US Marine Central Command (MARCENT), the Joint Forces Eastern Command (a mixed Saudi, Qatar, Kuwaiti force) and the French 6th Light AD (attached to XVIII Airborne Corps) were to attack on G-day. The VII Corps and the forces on each flank (3d ACR and 24th ID to the west, under XVIII Airborne Corps, and the Egyptian II Corps to the east, part of Joint Forces Northern Command) were not to attack until the morning of G+1.

The Iraqis were defending along the Iraq-Saudi and Kuwait-Saudi borders with a belt of infantry divisions. In the US VII Corps sector, the frontline Iraqi infantry divisions were controlled by the Iraqi VII Corps, defending from the Wadi al Batin west into XVIII Airborne Corps' zone (fig. 1). From east to west, the Iraqi 27th, 25th, 31st, 48th, 26th, 45th and 54th divisions defended in sector (the 45th and 54th divisions were in XVIII Airborne Corps' zone, thus not encountered by the US VII Corps).⁴

Near the Wadi al Batin, Iraqi divisions defended in depth on narrow frontages (the 27th Division, for example, occupied a 10-kilometer sector) and the prepared defenses were formidable—multiple trenchlines and wire obstacles, minefields and “fire trenches” filled with crude oil to be set afire if attacked. Moving west from

the Wadi al Batin, however, the frontages widened considerably. The Iraqi 26th ID in front of 1st ID defended a 35-kilometer sector, and it was not tied in to the division to its west, the 45th, which in turn was spread so thin as to be little more than a screening force. Iraqi prepared defenses were much less formidable as well—trenches were shallow, wire obstacles and mines few, and there were no fire trenches that far west.

Given this situation, VII Corps Commander Lieutenant General Frederick M. Franks Jr., elected, in early January, to attack as far west in zone as possible to envelop the enemy, penetrating through the thin Iraqi defenses and, as quickly as possible, to close with and destroy the RGFC.

Backing up the Iraqi frontline infantry, the VII Iraqi Corps held the 52d AD as a tactical reserve to counterattack any penetrations. The 52d's three brigades, the 52d Armored, the 80th Armored and the 11th Mechanized, were positioned behind the frontline infantry divisions to counterattack.

Located in greater depth were Iraqi theater reserves, heavy forces whose mission was to counterattack or block coalition forces' penetrations. In the US VII Corps' zone of attack, this force was the “Jihad Corps” comprising the 12th and 10th ADs. The Iraqi 2d Armored Corps (17th AD and 51st Mechanized Division) further east had a similar mission.

Finally, located in even greater depth were the heavy forces of the RGFC: the “Tauakalna” Mechanized Division, the “Medina” AD and the “Hammurabi” AD. The destruction of these elite divisions, the best equipped and most reliable of the Iraqi forces, was the VII Corps' mission. The RGFC's mission (the RGFC also included some light infantry divisions and a special forces division) was to counterattack, as a corps, the coalition forces' main attack once it was identified. As it turned out, before the RGFC could do this, VII Corps was at its doorstep.⁵

Clearly, given the strong defenses established in the Wadi al Batin area and in Kuwait itself, and the positioning of reserves behind those defenses, the Iraqis expected a coalition main effort

and "fire trenches" stretching to Wadi al Batin in central Kuwait; breaches in the main trench as well as wire obstacles; and a partially breached trench in the VII Corps area.

MSGT Roger Lauer, Missouri Air National Guard



SPC K. Benjamin Ongley

directly against Kuwait and, apparently, ruled out the wider flanking movement that actually occurred. The coalition's enveloping attack achieved tactical and operational surprise against an enemy who had little time or capability to react or reposition forces thanks to the speed of the coalition's attack and the impact of the coalition's air campaign on Iraqi forces. However, some enemy heavy forces were still able to reorient to the west and attempted to stand against the onslaught of VII Corps.

Following closure in its final assembly areas, VII Corps prepared for G-day. Large-scale artil-

lery raids began in 1st ID's sector. Such raids had already occurred in the 1st CD's sector. These raids varied in size, but at least one tube artillery battalion and an MLRS (Multiple Launch Rocket System) battery participated, usually more. In all, 14,000 rounds of cannon artillery and 4,900 MLRS rockets were fired by 17 cannon battalions, three MLRS battalions and six MLRS separate batteries by G-day.⁶

These raids primarily targeted Iraqi artillery, and coupled with the effect of the 38-day air campaign, they destroyed much of the artillery of the first echelon defending infantry divisions.

severely hampering their ability to defend against 1st ID's attack on G-day.¹ The raids also provided combat training for the firing batteries and were valuable planning and command and control exercises for artillery battalion and brigade staffs.

Much activity occurred in 1st CD's sector in a continuous effort to keep Iraqi attention focused on the Wadi al Batin. Attacks and feints by attack helicopters, numerous artillery raids and "berm busting" activities were almost daily occurrences. Berm busting was the practice of cutting gaps in the dirt berm built along the border. This berm, which identified the Saudi Arabia-Iraq border, an 8-to 10-foot high dirt

berm, was built to discourage smuggling. In some places a single berm, in others a double berm, these border berms posed an obstacle to any attacking force. By cutting gaps in the berm, the 1st CD hoped to portray to the Iraqis that an attack was imminent just west of the Wadi al Batin.

Once G-day was set for 24 February, VII Corps' units took several actions to prepare for their G+1, 25 February attack. On 23 February, 2d ACR cut 43 lanes in the border berm and deployed about 15 kilometers north of it. The 2d ACR's 4th Squadron deployed an aerial screen, behind which the lead squadrons deployed—2d Squadron on the west; 3d Squadron on the east;

DIVOPs: 3d Armored Division

It is a cool winter day in the Southwest Asian desert as the armored division advances in a movement to contact. Enemy forces are to the front, but their exact location is unknown. Second Brigade is forward in the one-up, two-back formation; 3d Brigade is to its left rear and 1st Brigade trails to its right. At 1135, the division commander receives a SALUTE (size, activity, location, unit, time, equipment) report from his cavalry squadron commander: An enemy brigade is dug into the desert floor 15 kilometers directly to the front. Brigade commanders have monitored and prepare to attack. As the commanding general (CG) readies his order, the combat aviation brigade (CAB) commander breaks into the division command net: "More enemy 20 kilometers to the right front." A force of at least a brigade is deployed and on the move; it appears ready to strike the division's flank. This was not expected. How can the CG communicate a new plan of action with enemy forces in two completely different directions and only a half-hour until contact?

The CG grabs his handset: "Execute DIVOP [division operation] 6 immediately . . . 12 o'clock grid TV364936; *Sword* limit of advance, the 34 north-south grid line; *Cobra* limit of advance, the 83 east-west grid line. Enemy approaching from 75 degrees. Acknowledge, over . . ." With his commanders' acknowledgements, the CG knows his division will simultaneously attack to destroy the enemy dug in to his front and block the large force approaching on his right. The order to execute had taken 2 minutes to prepare and less than a minute to send. The "plan" had been written weeks earlier.

This scenario describes a division attack against a notional enemy force during the 3d Armored Division's (3d AD) HUMMEX II exercise on 12 February 1991. DIVOP 6 was one of 13 DIVOPs created to allow almost immediate action on the part of the division in any combat situation. Commanders throughout the 3d AD had a set of DIVOPs. Each understood his unit's maneuver or support role when ordered to execute a specific operation. Earlier sand table and maneuver exercises had refined each commander's understanding of how the division would use DIVOPs upon contact with Iraqi forces. By eliminating entirely the need to execute the planning process during battle, the division was well prepared to act within any enemy commander's decision cycle.

The DIVOP concept is straightforward. Drills have traditionally been considered applicable only for units of task force size and smaller, but nothing precludes their use for a division. As adopted by 3d AD, each DIVOP (with one exception to be shown later) consisted of:

- A sequence of two sketches in which the preliminary situation and subsequent actions by divisional units are shown. The sketches include two inset boxes, each with an estimate of the friendly and enemy equipment strengths for the forces that would confront each other in the given situation. The insets provide a quick reference should correlation of forces calculations be necessary.
- A time line with a verbal description of expected 3d AD and enemy actions. Time line development was the result of a war game of each DIVOP. While there was no guarantee (or any real expectation)

1st Squadron in reserve behind 3d Squadron; and the regimental support squadron (RSS) behind 2d Squadron. The enemy did not oppose this action.⁸

On 24 February, while the Marines, the Joint Forces Eastern Command and the French 6th Light AD all began their attacks, the 2d ACR pushed farther north, then waited as planned until the attack the next day. This left room to the south for 1st and 3d ADs to close up to the border. The 1st ID also pushed north of the berm in its zone, commencing at 0538, and moved as far north as PL (phase line) Iowa, about 10 kilometers into Iraq, with 1st and 2d brigades abreast.⁹ This did not draw any reaction from

that the battle would go exactly as stated in the time line, it was an effective way of communicating unit actions necessary during the combat summarized by the sketches above.

- A brief note stating what information would be given with the order to execute that DIVOP. For DIVOP 6 (used during HUMMEX II), this information included the "12 o'clock grid," which is on the forward edge of the enemy's defensive position and is the grid on which the lead brigade is to orient. Limits of advance are established for the 2d and 3d brigades to preclude fratricide.* Last, the CG stated the direction from which the enemy flank attack was approaching. First Brigade, CAB and their supporting units need that information in order to execute their part of the DIVOP.

The situation covered by DIVOP 6 had the 3d AD attacking and defending simultaneously. The scope of situations covered by the 13 DIVOPs included additional offensive and defensive actions. Also included was a "standard division laager" (DIVOP 13) that could be used if the 3d AD had an extended halt for any reason during the attack into Iraq and Kuwait. This was the only DIVOP that did not include a time line. The standard laager was drawn to the scale used for the division operations overlay. The officer ordering execution of DIVOP 13 had only to give the DIVOP number and state two grid coordinates.

There is nothing notable about the number of DIVOPs totalling 13. Analysis of possible contingencies and a drive to keep the number of DIVOPs manageable

*Division operations (DIVOPs) were created after establishment of the division maneuver concept, and thus specific brigade locations (such as 2d Brigade forward) and division formations were reflected in the 3d AD DIVOPs. The DIVOP concept would work equally well for more generic situations.

VII Corps' units took several actions to prepare for their G+1, 25 February attack. On 23 February, 2d ACR cut 43 lanes in the border berm and deployed about 15 kilometers north of it. The 2d ACR's 4th Squadron deployed an aerial screen, behind which the [three] lead squadrons [and RSS] deployed . . . The enemy did not oppose this action.

the Iraqi 26th ID, whose main defensive positions were well north of the actual border. The 1st ID then began moving artillery forward into

able resulted in the 13 division drills that were eventually released to subordinate units. The number may have been different for another mission, environment or executing unit. The DIVOPs were also not meant to cover every contingency. Commanders and staffs understood that each was simply a starting point for further planning or action in circumstances not covered by the DIVOP set. The commander would order a fragmentary order (FRAGO) to the most appropriate DIVOP in such cases. In the example used to open this article, for instance, both enemy forces might have attacked 3d AD. There was no DIVOP to cover that contingency, but DIVOP 6 could have been the basis for action in such a situation. The CG would then have referred to the DIVOP and modified it as necessary. The reaction time of the division would remain very short as it executed an alteration of a well-known drill rather than having to develop a wholly new operation.

DIVOPs made the 3d AD a more flexible, more effective unit as it prepared for its attack against the Iraqi army in late February, 1991. They provide armies a means of beating Soviet (or Soviet-trained) forces under conditions the Soviets have long regarded their domain: the movement to contact/meeting engagement battle. In combat, where the difference between victory and defeat can be a matter of seconds, and where the clarity of an order can cause either a rout of the enemy or disaster for one's own soldiers, DIVOPs can be the decisive factor. Regardless of division structure, terrain or enemy, DIVOPs offer an advantage on coming battlefields. **MR**

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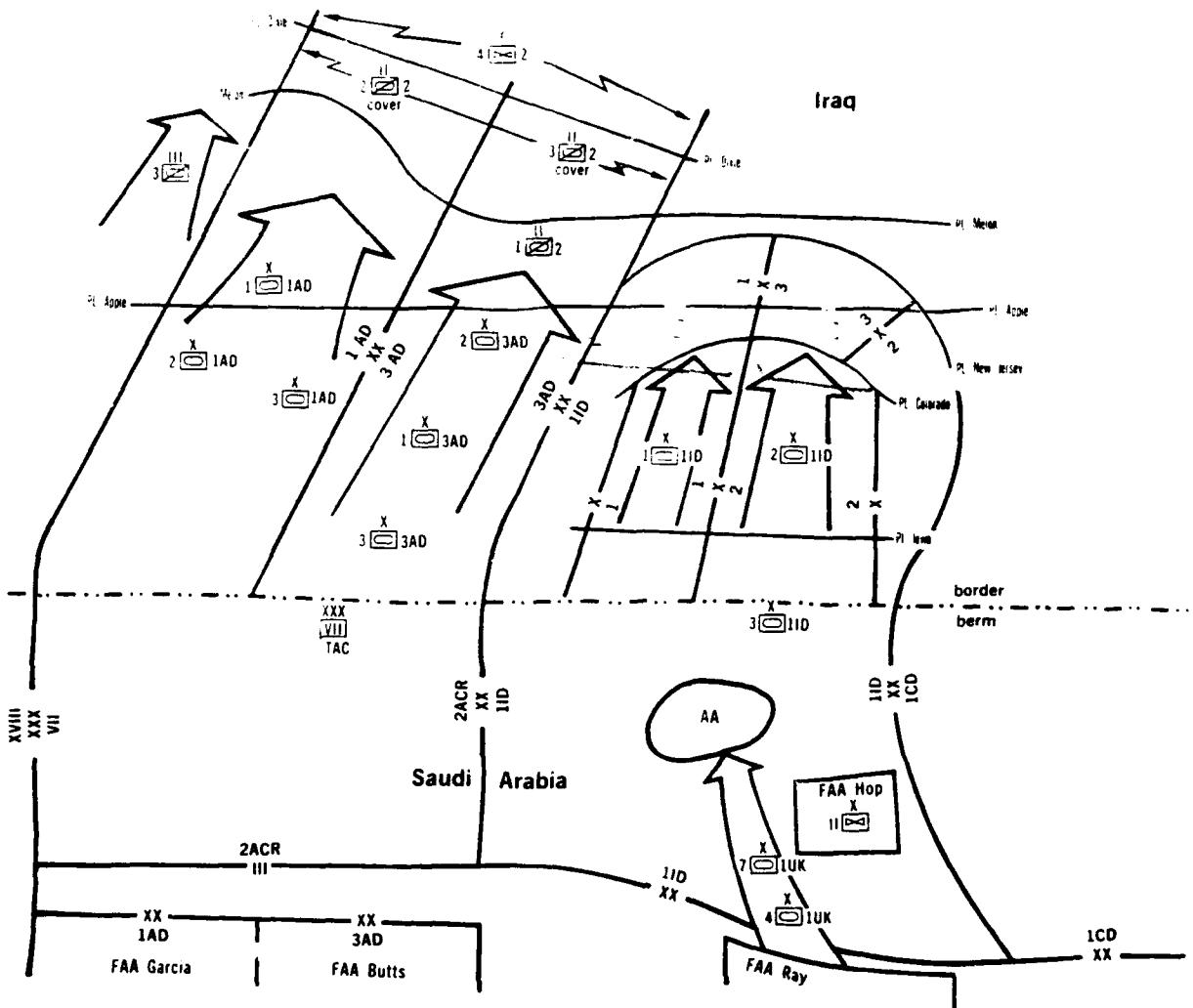


Figure 2. VII Corps, 24 February 1991

At 1430, 1st ID began a 30-minute artillery preparation and attacked the Iraqi 26th ID defenses at 1500, with 1st Brigade on the left and 2d Brigade on the right. The 3d Brigade (2d AD[F]) was in reserve. . . . Resistance . . . was sporadic, with most of the frontline infantry choosing to surrender rather than fight. Those not surrendering were plowed under in their trenches by tank-mounted mine plows and armored combat earthmovers. No enemy artillery fire was received. The 1st ID began clearing and marking lanes through the enemy's defensive belt.

position for a 2 1/2-hour preparatory barrage to be fired the next morning. The 1st ID was initially the corps' main effort and had three of the corps' four artillery brigades and two division artilleries (DIVARTYS) supporting it.¹⁰

In the midst of all this activity, the corps commander got a call at about 0930 from the ARCENT commander, Lieutenant General John J. Yeosock, relaying the query from Central Command (CENTCOM) commander, General H. Norman Schwarzkopf, who wanted to know if the forces designated to attack on G+1 could attack early, based on the success of the ongoing G-day offensive. Yeosock had already talked to

the XVIII Airborne Corps commander, Lieutenant General Gary E. Luck, who said that he could attack on 2 hours' notice. Franks gave a tentative yes to this, pending confirmation with his commanders. The corps issued a warning order to be prepared to attack on 2 hours' notice.

Franks summoned Colonel Don Holder, the 2d ACR commander, and Major General Paul E. Funk, the 3d AD commander, to the corps' TAC (tactical command post) in 2d ACR's sector near the border to discuss the prospects of an early attack.¹¹ Then, at 1115, the corps commander flew by UH-60 helicopter to visit Major General Thomas G. Rhame, the 1st ID com-

A track commander pulls security as his M113 is topped off, 24 February 1991.



The weather on 24 February was typical of what VII Corps could expect for the duration of the war—cold, mostly cloudy, with rain showers in the morning.

Rain stopped in the afternoon, but the winds picked up from the southeast, and blowing sand reduced visibility to 1,000 meters or less. In the evening, winds subsided, but overcast skies made for a dark night.

mander, to discuss an early attack. The 1st ID would have to hurry its artillery into position and plan a shorter preparatory fire, but Rhame felt it could be done. The corps commander returned to the corps' TAC at about 1250. At 1300, ARCENT informed the corps that the G+1 attacking force would indeed attack 2 hours hence.

At 1430, 1st ID began a 30-minute artillery preparation and attacked the Iraqi 26th ID defenses at 1500, with 1st Brigade on the left and 2d Brigade on the right. The 3d Brigade (which was actually the attached 2d AD[F]) was in reserve. By 1800, 1st ID reached PL Colorado (fig. 2). Resistance by the two brigades of the 26th ID defending in 1st ID's zone was sporadic, with most of the frontline infantry choosing to surrender rather than fight. Those not surrendering were plowed under in their trenches by tank-mounted mine plows and armored combat earthmovers. No enemy artillery fire was received. The 1st ID began clearing and marking lanes through the enemy's defensive belt.¹²

Meanwhile, 1st (UK) AD had planned to move its two combat brigades, the 4th and 7th

Armored, by heavy equipment transporter from FAA Ray to assembly areas (AAs) near the breach in preparation for forward passage. It began roadmarching forward instead in response to the 15-hour advance in the time of the corps' attack.

The corps commander ordered the 2d ACR to attack north at 1430. The 2d ACR covered the movement of the 1st AD, which moved out at 1434 in a division wedge, and the 3d AD, which moved abreast of 1st AD to the east, commencing at 1445, in a column of brigades.¹³ By dark, the 2d ACR had advanced 40 kilometers, to PL Dixie, meeting only scattered resistance and capturing several hundred prisoners from the 26th ID, whose main defenses the 2d ACR had essentially bypassed to the west. The regiment maintained contact with 3d ACR of XVIII Corps, attacking on its left flank.¹⁴ The 1st and 3d ADs moved behind 2d ACR, keeping about 10 kilometers behind the regiment's rear elements.

The corps' 11th Aviation Brigade, with two Apache attack battalions, 4-229th Attack Helicopter Regiment (AHR) and 2-6 Cavalry

British engineers pulling past a wrecked Iraqi 122mm self-propelled howitzer.



The 1st (UK) AD's 7th Brigade, the first to pass through 1st ID, was in almost immediate contact with the Iraqi 48th ID. . . . Badly mauled by coalition air and 1st ID artillery, it remained oriented to the south, allowing the 1st (UK) AD to attack through its rear area from the flank, causing considerable havoc. The 1st (UK) AD continued eastward all day with its 7th Brigade in the lead, attacking through the 48th ID area and into the Iraqi 31st ID's rear area.

(CAV), stood by in FAA Hop ready to execute CONPLAN (operation plan in concept format) BOOT, a corps contingency plan to use attack helicopters against any tactical reserves the Iraqis might launch against 1st ID. The brigade remained on alert the following day as well, but no enemy reserves reacted to the 1st ID, and the 1st (UK) AD had to take the fight to the enemy instead.¹⁵

Also, on 24 February, the 1st CD, though no longer under VII Corps control, conducted operations in support of the corps by initiating a brigade-size reconnaissance in force, with 2d Brigade and the division's aviation brigade moving north against the Iraqi defenses west of the Wadi al Batin. This brought Iraqi return fire and caused fire trenches to be lit. This action helped divert Iraqi attention from the real attack being conducted farther to the west by 1st ID.¹⁶

The weather on 24 February was typical of what VII Corps could expect for the duration of the war—cold, mostly cloudy, with rain showers in the morning. Rain stopped in the afternoon,

but the winds picked up from the southeast, and blowing sand reduced visibility to 1,000 meters or less. In the evening, winds subsided, but overcast skies made for a dark night.¹⁷

As darkness approached, the corps commander faced an important decision—to continue the attack, or to halt until first light. He consulted both Rhame and Holder for their assessments. Both recommended waiting until first light. Rhame was concerned about breaching operations unrehearsed during darkness; Holder, about getting the corps strung out in a piecemeal commitment against the RGFC. After consulting with the two lead commanders, he elected to halt, despite the attack's success so far, for three reasons. First, the 1st ID, although enjoying great initial success, had not completed breaching the enemy defenses by dark, and it had not practiced a night breaching operation. Second, a continuation of the enveloping forces' movement on a very dark night would have strung them out, and Franks wanted to ensure that it was a concentrated

force—"a big fist" when the enveloping force reached the positions of the Republican Guard. Finally, a night move would have virtually guaranteed that enemy forces would be bypassed, and elements of the Iraqi 26th ID were known to be in front of 2d ACR. These bypassed forces could have caused problems for the critical follow-on logistics echelons. Thus, keeping an eye on the objective, destruction of the RGFC, the corps directed a halt for the night except for artillery action and use of attack helicopters.

About 1,500 enemy prisoners of war were taken on 24 February, mostly by 1st ID, and the Iraqi 26th ID was virtually combat ineffective, except for its 806th Infantry Brigade positioned farther to the north, a lone defender in the path of the corps' enveloping force. During the night, VII Corps units refueled and conducted artillery and attack helicopter strikes.

At 0600 on 25 February, the 1st ID resumed its attack. The 1st ID's 3d Brigade was committed to the attack, and all three brigades attacked in zone to complete breaching the Iraqi forward defenses. By 1100, the 1st ID had reached PL New Jersey and completed the destruction of the Iraqi 26th ID (fig. 3). At 1200, the 1st ID began forward passage of the 1st (UK) AD via 4 lanes cut through the Iraqi defenses. The passage of the 7,000 vehicles of the 1st (UK) AD took until 0200, 26 February.¹⁸ The 1st ID released 142d Field Artillery (FA) Brigade to reinforce the 1st (UK) AD artillery.

The 1st (UK) AD's mission was to attack east in zone to protect the flank of the enveloping force and to destroy the enemy's tactical reserves, specifically the brigades of the Iraqi 52d AD. The 1st (UK) AD's 7th Brigade, the first to pass through 1st ID, was in almost immediate contact with the Iraqi 48th ID, defending just to the east of the 26th ID. The 48th ID was already badly mauled by coalition air and 1st ID artillery. It remained oriented to the south, allowing the 1st (UK) AD to attack through its rear area from the flank, causing considerable havoc.

The 1st (UK) AD continued eastward all day with its 7th Brigade in the lead, attacking

through the 48th ID area and into the Iraqi 31st ID's rear area, which like the 48th ID remained oriented to the south. The Iraqi VIIth Corps tactical reserves, specifically the brigades of the 52d

Franks had always envisioned using a "three-division fist," plus his ACR, to destroy the RGFC. Tentative plans made prior to the attack called for the 1st CD to be the needed third division, joining 1st AD, 3d AD and 2d ACR. But as the corps approached the RGFC positions on 25 February, the 1st CD was still in theater reserve.

A plan was now needed to continue the attack beyond the initial Objective Collins. The conditions on the battlefield most closely reflected the situation envisioned in the corps' FRAGPLAN #7, specifically that the RGFC would fight from its current positions. . . . The corps commander directed his chief of staff to prepare an order implementing FRAGPLAN #7 and to incorporate a deep attack by the corps' 11th Aviation Brigade.

AD, were destroyed piecemeal by the 1st (UK) AD as it attacked eastward, starting with the 52d Armored Brigade. As with the frontline infantry divisions, the reserves were already heavily damaged by coalition air and were taken by surprise in their flank by the rapidly advancing British.

While the 1st (UK) AD attacked eastward, the enveloping force continued its drive to the north and east. At 0640, 25 February, the 2d ACR continued its covering force mission, moving to the north and then shifting northeast, uncovering the 1st AD's zone of attack. The 1st AD moved north toward Objective Purple and the village of Al Busayyah, a known Iraqi logistics base defended by elements of the 26th ID, plus an estimated special forces battalion and a company or more of T-55 tanks. The weather this day continued to be miserable—overcast,

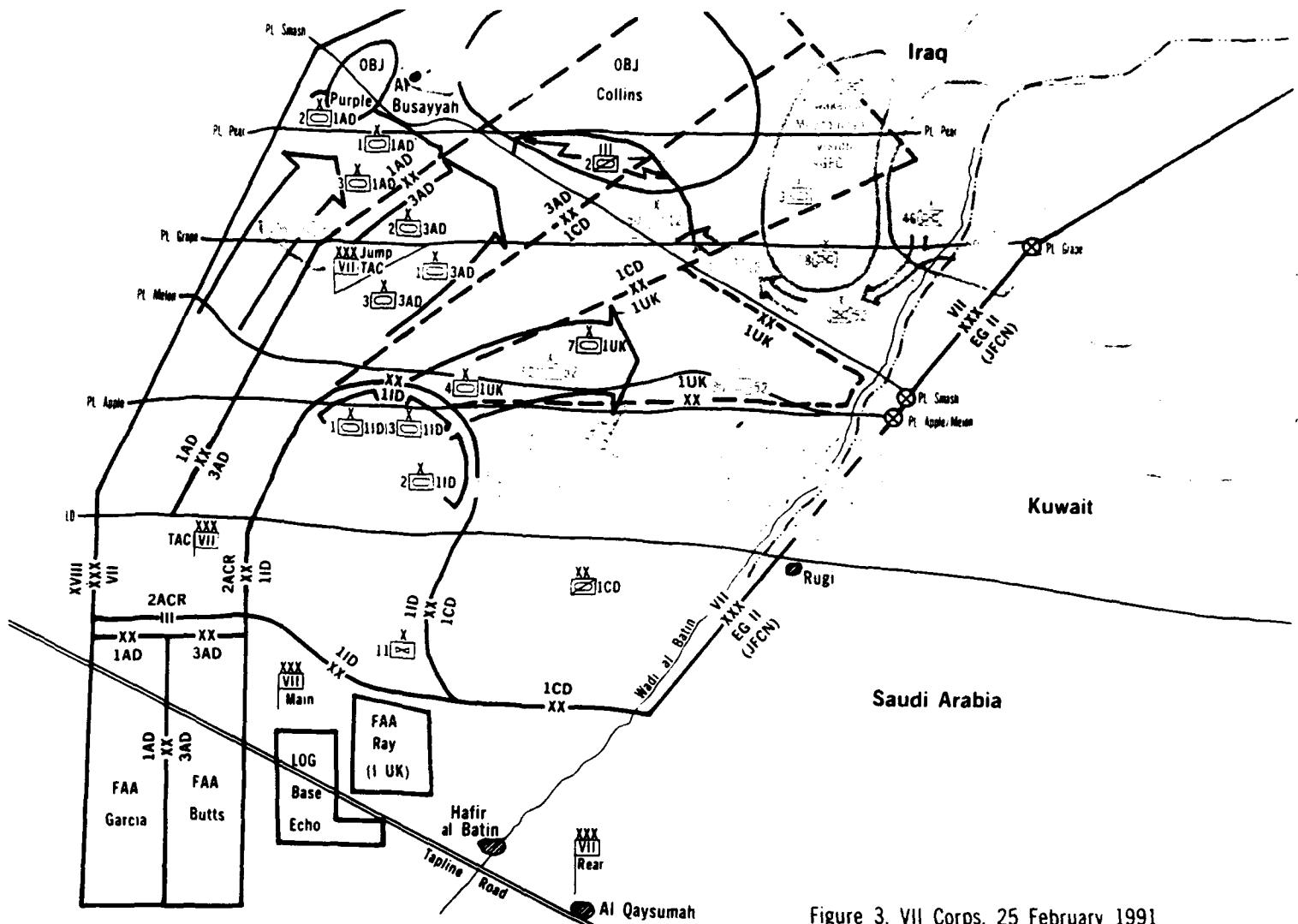
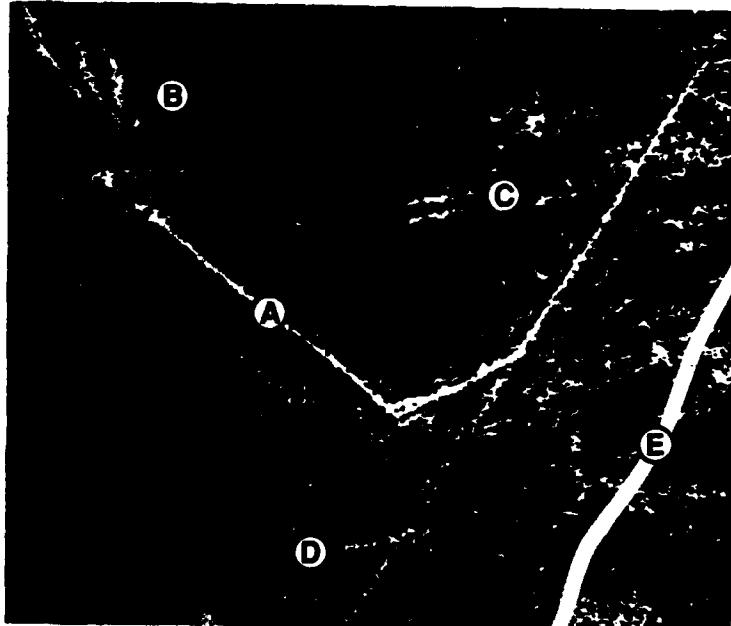


Figure 3. VII Corps, 25 February 1991

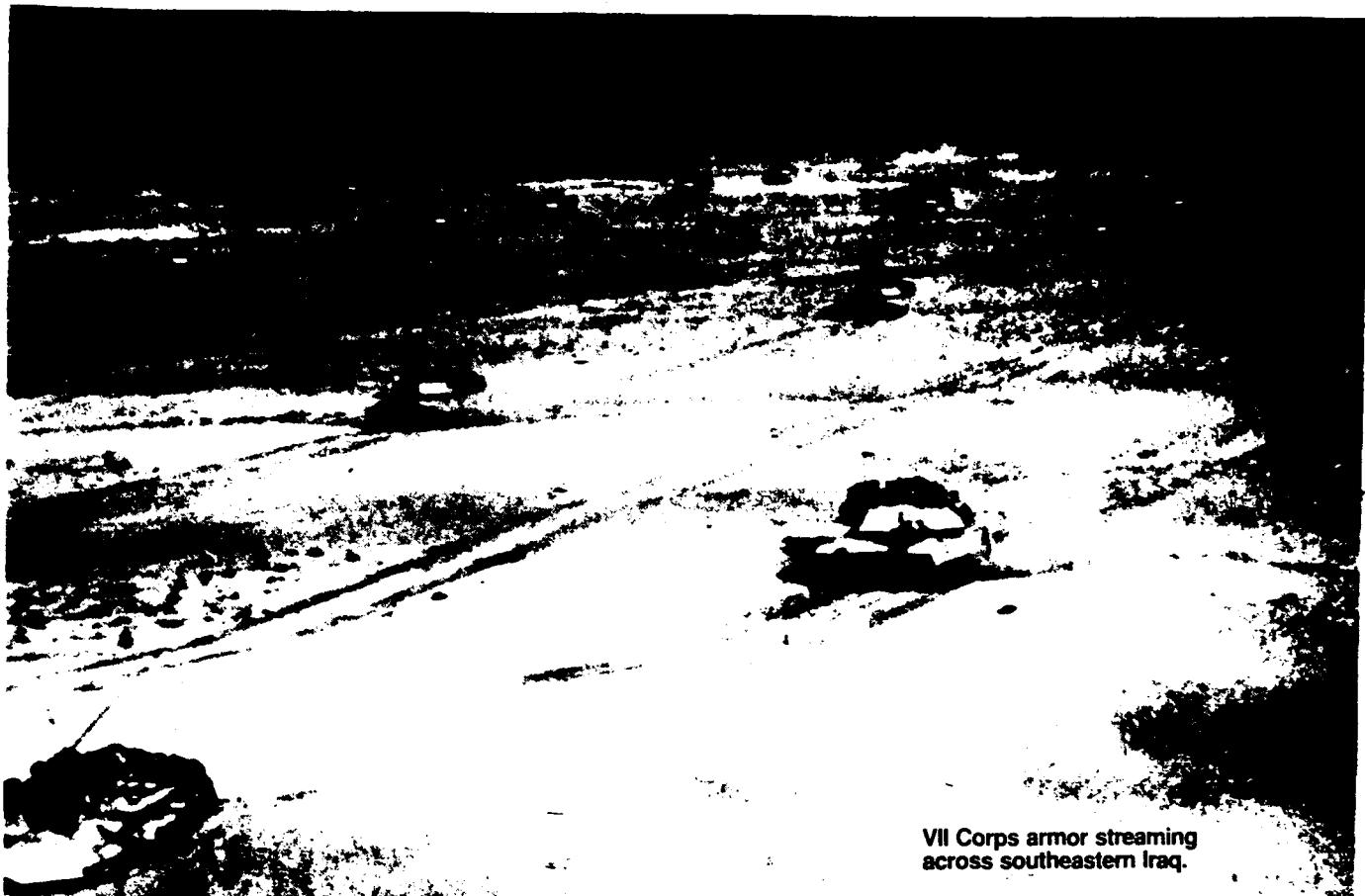
See shaded portion on map for area covered by JSTARS image (below) of Iraqi vehicle movements: (A) 37th, 11th and 46th brigades moving along road to blocking positions; (B) elements of 50th Brigade fanning out; (C) 18th Brigade moving into blocking positions; (D) 80th Brigade position; and (E) Iraq-Kuwait border.



cold, frequent rainshowers, at times heavy, with the wind picking up again in the afternoon, although perhaps not as briskly as the previous day.

Lying in the path of the 1st AD was the hapless, unsupported 806th Brigade of the Iraqi 26th ID. The 2d ACR had contact with elements of this brigade, as did the westernmost brigade of the advancing 3d AD; but most of the 806th Brigade was destroyed that morning by the 1st AD, which captured 314 prisoners.¹⁸

As the 1st AD continued north after destroying the 806th Brigade, it launched its Apache attack helicopters against Al Busayyah. At dark, the 1st AD halted about 10 kilometers short of Al Busayyah, with 1st Brigade on the east, 2d Brigade in the west and 3d Brigade in reserve. The division commander, Major General Ronald H. Griffith, did not want to risk a night attack against infantry entrenched in a built-up area. He therefore asked the corps commander if he could soften up Al Busayyah that night with artillery and Apaches and attack it at first light.



VII Corps armor streaming across southeastern Iraq.

The 2d ACR, after destroying the 50th Armored Brigade . . . went into hasty defensive positions. At 0330 on 26 February, the 2d ACR moved out again, this time due east, and, in so doing, opened up the 3d AD's zone of attack. . . . The corps commander wanted to commit the 1st ID, which would soon be en route from the breach area, into that flank while the 1st and 3d ADs closed in on the RGFC as well. Frank's three-division fist was forming.

Franks agreed, but told Griffith not to let Al Bu-sayyah cause undue delay, as he was concerned about concentrating the corps for the fight against the RGFC, and 1st AD had the farthest to travel to get into position for that battle. He wanted the 1st AD in position to mass against the RGFC by 0900 the next morning.

The 2d ACR reduced its zone and continued moving northeast, now covering only the 3d AD, reaching PL Smash at noon. Just beyond Smash, the 2d ACR encountered, and destroyed, the 50th Brigade of the 12th AD.²⁰ The 50th and 37th brigades of the 12th AD had just completed a very costly repositioning to the southwest to establish blocking positions against the advancing VII Corps. Starting out the night before, these brigades were heavily attacked by coalition air, with the 50th Brigade losing most of its tanks by the time it reached its blocking posi-

tion on the morning of 25 February. What was left, mostly mechanized infantry, was destroyed that afternoon by the 2d ACR.

The 3d AD continued to follow the 2d ACR, and as the division's zone widened, shifted from a column of brigades to two brigades abreast (2d on the left and 1st on the right) followed by 3d Brigade in reserve. At 1300, the 1st ID released the 42d and 75th FA brigades to reinforce 3d AD and 1st AD respectively as the VII Corps point of main effort shifted to the attack against the RGFC. The FA brigades raced north to link up with their divisions in time for the anticipated battle with the RGFC. The 42d FA Brigade linked up with 3d AD by nightfall, while the 75th FA Brigade, with a long way to travel, did not link up with 1st AD until 1600, 26 February.²¹

The corps commander, who had moved for-



LTC David McKlernan listens as LTG Franks sketches his concept, of the double envelopment of Iraqi forces, 27 February 1991.

LTG Franks: "We are going to drive the corps hard for the next 24 to 36 hours, day and night, to overcome all resistance and to prevent the enemy from withdrawing. We will synchronize our fight, as we always have, but we will have to crank up the heat. The way home is through the RGFC."

ward to the corps' jump EAC via UH-60 at about 0830, 25 February, called his chief of staff, Brigadier General John R. Landry, and key planners forward late in the day. It was time for some reviewing of earlier planning, specifically for the destruction of the RGFC.

Franks had already taken a step in that direction by ordering the 1st ID to move northeast and be prepared to pass through 2d ACR as soon as passage of the 1st (UK) AD was complete, leaving a single task force (instead of a full brigade, which was the original order) to secure the breach area. Franks had always envisioned using a "three-division fist," plus his ACR, to destroy the RGFC. Tentative plans made prior to the attack called for the 1st CD to be the needed third division, joining 1st AD, 3d AD and 2d ACR. But as the corps approached the RGFC positions on 25 February, the 1st CD was still in theater reserve. Franks decided, therefore, to use 1st ID,

the 1st ID began moving at 0430, 26 February, following the 0200 completion of the 1st (UK) AD passage, and was committed to the fight, as it turned out, late on the 26th.¹⁷

A plan was now needed to continue the attack beyond the initial Objective Collins. The conditions on the battlefield most closely reflected the situation envisioned in the corps' FRAGI-PLAN #7, specifically that the RGFC would fight from its current positions. Since no significant movement of the RGFC had occurred, the corps commander directed his chief of staff to prepare an order implementing FRAGI-PLAN #7 and to incorporate a deep attack by the corps' 11th Aviation Brigade. A verbal order went out, and Franks personally explained his intentions to commanders during his visits late in the day on 25 February. Landry and his staff prepared the plan and graphics to back up the verbal orders at the corps' jump EAC that evening. (The

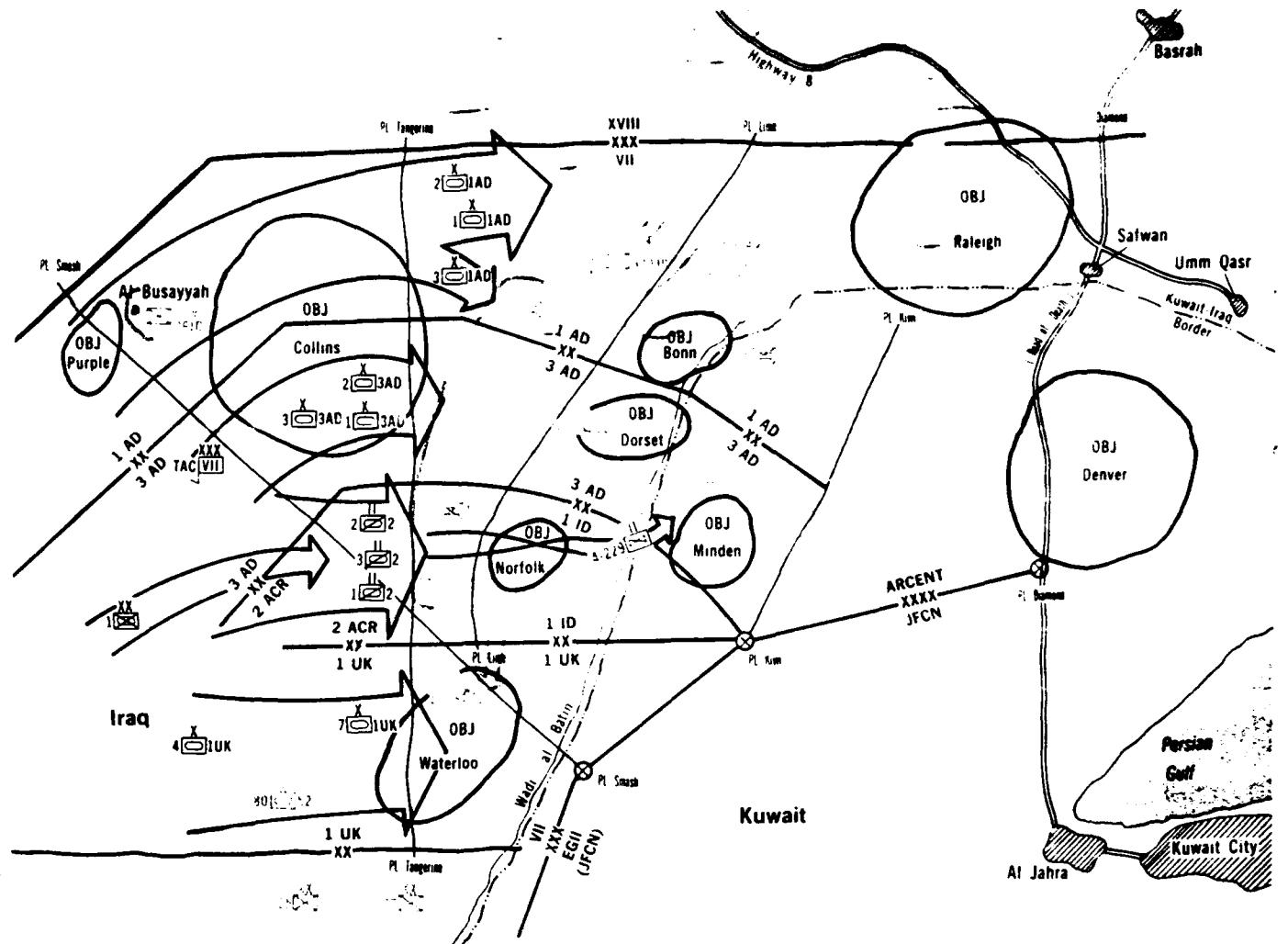


Figure 4. VII Corps, 24 February 1991

graphics shown on figure 4 reflect this plan.)

That night, 1st AD repeatedly struck Al Busayyah with artillery and attack helicopters. Following a final artillery preparation fired at 0615, 1st AD attacked through the Al Busayyah area at 0630 with 1st Brigade on the right and 2d Brigade on the left, continuing on to the northeast without pause. Task Force 6-6 IN and an engineer company were left behind to destroy Iraqi equipment and the considerable stores of ammunition and supplies in the area.²³ Elements of the Iraqi 26th ID, with an attached special forces unit, were destroyed, and 451 prisoners were taken.

The 2d ACR, after destroying the 50th Armored Brigade of the 12th AD at about 1600 on 25 February, went into hasty defensive positions. At 0330 on 26 February, the 2d ACR moved out again, this time due east, and, in so doing, opened up the 3d AD's zone of attack. The 2d ACR moved with three squadrons abreast—2d, 3d and 1st from north to south. The regiment

knew it would soon encounter the RGFC's *Tawakalna* Mechanized Division. The 2d ACR's mission was to find and fix the *Tawakalna*, and find an open southern flank if possible. The corps commander wanted to commit the 1st ID, which would soon be en route from the breach area, into that flank while the 1st and 3d AIDs closed in on the RGFC as well. Franks' three-division fist was forming.

The night of 25–26 February was chilly, with intermittent rain. The rain slackened in the morning, but by afternoon, a full-scale "shamal," or sandstorm, was blowing. This worked to the corps' advantage in the ensuing battle; the Iraqis did not expect to be attacked in the middle of such a storm. Also, the superior US thermal sights allowed the tanks and Bradleys to engage before the enemy could see their attackers.

The Tawakalna Mechanized Division waited in defensive positions, oriented generally westward, with three brigades of T-72 tanks and BMP (Soviet armored personnel carrier)

infantry fighting vehicles, mostly in revetted fighting positions (fig. 4). The T-55 tanks of the 12th AD's 37th Armored Brigade, which had

Also on 26 February, the corps received additional forces. At 0930, the 1st CD was attached. The corps commander ordered the 1st CD to move through the 1st ID breach area to an assembly area behind the 1st AD for commitment against the RGFC. At 1100, the 1st CD began the 250-kilometer move.

repositioned on 25 February, were tied into the southern end of the Tawakalna defenses.

The 2d ACR pushed eastward all day. After crossing PL Tangerine, the 2d ACR encountered the forward security outposts of the Tawakalna Division, destroying them in short, sharp engagements. The Iraqis were taken by surprise. Pressing on, the 2d ACR encountered, by mid-afternoon, the main defensive positions. A series of confusing engagements ensued, with enemy forces trying to defend and make local counter-attacks. Bypassed enemy units showed up in 2d

HEMTT fuelers from the 3d Infantry Division supporting the 1st Armored Division's drive through Iraq, 27 February 1991.



ACR rear areas, as did enemy units fleeing north in the face of 1st (UK) AD's attack in the south. Small-unit leadership and aggressiveness, plus superior gunnery skills, took a heavy toll of the surprised enemy.

The Iraqis managed to open fire with their artillery, but US counterbattery fire quickly silenced the enemy guns. At times, when the blowing sand abated enough to see the ground, the 2d ACR made good use of close air support and attack helicopters. The 2d ACR broke off what it would dub "The Battle of the 73 Easting" (the north-south gridline of the main enemy defenses) that evening to prepare for the passage of the 1st ID, which would continue the assault.²⁴ The regiment had destroyed 82 tanks and 23 armored personnel carriers.

The 2d ACR did not fight alone that day. The 3d AD moved out in zone at 0500, 26 February, and crossed PL Tangerine with two brigades on line, 2d in the north and 1st in the south, and 3d Brigade in reserve. As did 2d ACR, the 3d AD first encountered the enemy's outposts forward of the Tawakalna Division's main defenses, at about 1600. The 3d AD destroyed these outposts and brought indirect and direct fires to bear on the enemy's main defenses in what the 3d AD would call the "Battle of Phase Line Bullet."

Soldiers from the 1st Infantry Division deploying across an antitank ditch.



The Tawakalna Mechanized Division waited in defensive positions, oriented generally westward, with three brigades of T-72 tanks and BMP infantry fighting vehicles, mostly in revetted fighting positions. The T-55 tanks of the 12th AD's 37th Armored Brigade, which had repositioned on 25 February, were tied into the southern end of the Tawakalna defenses. . . . A series of confusing engagements ensued, with enemy forces trying to defend and make local counterattacks. Bypassed enemy units showed up in 2d ACR rear areas, as did enemy units fleeing north in the face of 1st (UK) AD's attack in the south. Small-unit leadership and aggressiveness, plus superior gunnery skills, took a heavy toll of the surprised enemy.

The Tawakalna stood and fought, as it did all along its defensive line. The fighting continued into the night.²⁵

The 1st AD, after attacking through Al Bu-savah, pushed eastward in zone. They had the farthest to travel to get into the fight. The 1st AD crossed PL Tangerine at 1800, with three brigades on line—2d, 1st and 3d from north to south. The 3d Brigade encountered the northern end of the Tawakalna position and attacked it from the northeast. This fight also continued into the night.

Also in the 1st AD zone, an RGFC light infantry brigade, probably from the "Adnan" Division, moved south and began to establish defensive positions. The 1st AD's Apaches attacked it at 1615, followed by artillery at 1915. The light brigade decided it had had enough and withdrew northward.²⁶

At the other end of the corps zone, the 1st (UK) AD continued its attack eastward, pro-

tecting the corps' flank, completing the destruction of the enemy's tactical reserves and capturing thousands of Iraqi prisoners from the outflanked first-echelon infantry divisions. The 1st (UK) AD reached Objective Waterloo with lead elements on the morning of 26 February, with the 7th and then the 4th Brigade closing into Waterloo during the day and into the night.²⁷

The 1st (UK) AD had run out of maneuver space. The corps asked ARCENT for a boundary shift between the corps and Forces Northern Command to open up a zone of attack for the British to continue their drive eastward. This was approved, and the 1st (UK) AD was assigned Objective Varsity (fig. 5).

Meanwhile, the corps' TAC, after a nightlong displacement, linked up with the Jump TAC at 1310, 26 February. The corps commander, after a round of late afternoon unit visits via UH-60, entered the TAC at 1725 and briefed the staff on



The 1st (UK) AD attacked east toward Objective Varsity with its 7th Brigade, continuing to protect the corps' flank. The 4th Brigade protected the 1st (UK) AD's southern flank, as sizable numbers of frontline Iraqi soldiers were not cut off to the south, and many were fleeing north in the face of Egyptian and US Marine attacks.

the rapidly developing battle, Franks explained:

"We are going to drive the corps hard for the next 24 to 36 hours, day and night, to overcome all resistance and to prevent the enemy from withdrawing. We will synchronize our fight, as we always have, but we will have to crank up the heat. The way home is through the RGFC."¹⁷

The corps did, indeed, crank up the heat. The 1st ID passed through the 2d ACR beginning at about 2200, with 2d ACR reporting completion of the passage at 0212. The 2d ACR released the 210th FA Brigade to reinforce the 1st ID artillery. The 1st ID immediately attacked to the east, with 1st Brigade in the north and 3d Brigade in the south to clear Objective Norfolk.

As the 1st ID, 3d AD, and 1st AD pressed their attacks, the corps commander decided to attack the enemy in depth as well, using an attack helicopter battalion of the corps' 11th Aviation Brigade. The 4-229th AH R attacked Objective Minden at 2145, 26 February and again at 0240, completing the second attack by 0400 after a second turnaround. The 11th Aviation Brigade reported destroying 33 tanks, 18 personnel carriers and 35 other vehicles. The enemy forces were probably elements of the 10th AD, whose brigades had not reacted to the VII Corps' attack. The 11th Aviation Brigade reported that the enemy on Minden was abandoning its equipment and fleeing north.¹⁸ There was little

doubt that the Iraqis were starting to flee the battlefield as coalition forces attacked on every front. The Tuwakalha and then the Medina divisions, however, stood and fought.

Also on 26 February, the corps received additional forces. At 0930, the 1st CP was attached.¹⁹ The corps commander ordered the 1st CP to move through the 1st ID breach area to an assembly area behind the 1st AD for commitment against the RGFC. At 1100, the 1st CP began the 250-kilometer move.²⁰

During the night of 26-27 February, the corps' Lump FAC moved east in a series of bounds to maintain radio contact with the advancing divisions. Throughout the night, the Lump FAC and the corps' mobile command post (CP) (a group of three M577 CP vehicles, which had moved north with 1st ID from the breach area) expertly relayed situation reports to the corps commander at the FAC. At dawn, the FAC displaced to link up with the Lump FAC and Franks arrived at the Lump FAC via UH-1 at 0700.²¹

Franks believed that a double envelopment of the remaining RGFC forces was now possible. The 1st ID had secured Objective Norfolk at 0430, completing the destruction of the 10th AD's 37th Brigade and the southern positions of the Tuwakalha division. Enemy resistance now seemed to be crumbling. If the 1st ID could break through, and if either the 1st AD or the 1st

CD, just then hurrying north, could break through in the north, then a double envelopment might succeed. The corps commander sketched this out in the sand to his Jump TAC officer in charge, Lieutenant Colonel David McKiernan, and then took off in his UH-60 to get assessments from his commanders. He visited 3d AD, 1st AD and then 1st ID. He urged the armored division commanders to press the attack against the still-fighting RGFC forces.

While visiting the 1st ID, Franks learned that the Big Red One was indeed breaking through. Rhame, the division commander, thought he could reach Objective Denver by nightfall. Franks, with his envelopment plan in mind, told Rhame to drive on.

The corps commander returned to the Jump TAC and convened a meeting at 1030 with the 1st CD commander, Brigadier General John H. Tilelli Jr., and the 2d ACR commander, Holder, to explain his envelopment scheme. The 2d ACR was to follow 1st ID as corps reserve and be prepared to exploit 1st ID's success. The 1st CD was to pass around the northern flank of 1st AD to form the northern arm of the envelopment. The corps commander hoped to pull this off later that same day.

The TAC linked up with the Jump TAC at 1250 and the G3 plans chief, Lieutenant Colonel Bob Schmitt, arrived via helicopter from the corps MAIN. The corps G3, Colonel Stanley F. Cherrie, and the staff went to work on a fragmentary order for the envelopment.³³ (Figure 5 shows the graphics for this envelopment.) The 1st ID would drive for Objectives Hawk and Denver, and the 1st CD would drive on Objective Raleigh. The 1st and 3d ADs would attack due east in zone, maintaining pressure on the RGFC.

The fighting continued on 27 February. The 1st (UK) AD attacked east toward Objective Varsity with its 7th Brigade, continuing to protect the corps' flank. The 4th Brigade protected the 1st (UK) AD's southern flank, as sizable numbers of frontline Iraqi soldiers were not cut off to the south, and many were fleeing north in the face of Egyptian and US Marine attacks.³⁴

The 1st ID passed 2d Brigade through 1st Brigade at 0600, and attacked east toward Objective Denver, with 2d Brigade in the north and 3d

A double envelopment of the remaining RGFC forces was now possible. The 1st ID had . . . completing the destruction of the 12th AD's 37th Brigade and the southern positions of the Tawakalna Division. Enemy resistance now seemed to be crumbling. If the 1st ID could break through, and if either the 1st AD or the 1st CD . . . could break through in the north, then a double envelopment might succeed.

Brigade in the south, transitioning to an exploitation, as the 1st ID found increasing amounts of abandoned equipment. Much of the Iraqis' 10th AD, reported to be one of their best regular army formations, elected to flee rather than fight. The 1st ID and the 3d AD overran these largely abandoned positions during the day. The 2d ACR, now in reserve, followed 1st ID.³⁵

In 3d AD's zone, fighting against the Tawakalna Division continued into dawn on 27 February. At about 0800, the 3d Brigade passed through 2d Brigade and pressed the attack. At 1000, the 11th Aviation Brigade's 2-6 CAV attack helicopter battalion was placed under operational control of 3d AD for attacks into Objectives Dorset and Minden. By 1540, the 3d AD closed on Objective Dorset, and the Tawakalna Division elements in its zone were destroyed, as was the remaining brigade of the 12th AD, the 46th Mechanized Brigade. At 2130, 3d AD reached its limit of advance, PL Kiwi, established to prevent the 3d AD from advancing east into the 1st ID moving in a northerly direction just east of Kiwi. A buffer zone of 5 kilometers was established southeast of PL Kiwi to prevent accidental engagement of the two converging divisions.³⁶

The 1st AD, which had traveled the farthest in the offensive, was getting critically low on fuel by the morning of 27 February. Griffith told

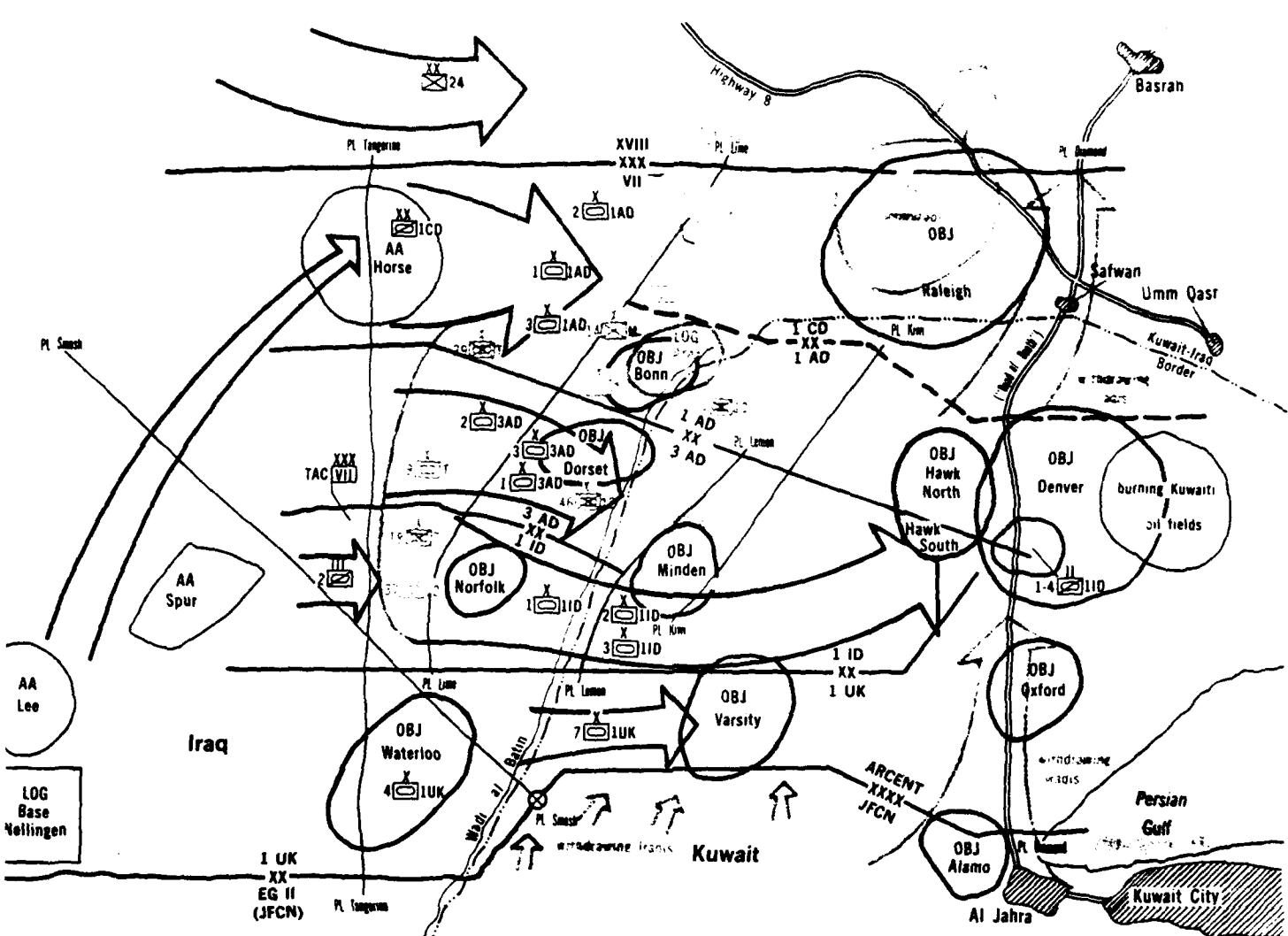


Figure 5. VIII Corps, 27 February 1991

The 1st AD found itself decisively engaged with the 2d and 14th brigades of the Medina Division, as well as with two unidentified heavy brigades, possibly from the 17th AD. Also, the brigade of the Adnan Division engaged the 1st AD from out of sector. The 1st AD was not able to disengage and shift forces south to open a zone for the 1st CD. . . . [but] finished its fight with a vengeance.

Franks of this situation early that morning. The key decision then was whether to stop the 1st AD in place and pass the 1st CAV through (a maneuver that might have taken all day and that would have taken pressure off the RGFC) or to get fuel for the 1st AD. The corps commander called the 3d AD, which immediately responded. The emergency resupply from 3d AD kept the 1st AD rolling. The corps established

a forward logistics area—Log Base Nellingen—north of the 1st ID breach area on 26 February and began pushing fuel from there. The 1st AD's 3d Brigade finished destroying the northern position of the *Tawakalna*, and the division continued eastward, with three brigades on line—the 2d, 1st and 3d from north to south.³⁷

The Iraqi Medina AD, starting on 26 February, had begun reorienting westward to fight the corps and to protect the sizable logistics dumps in the vicinity of Objective Bonn. Also, the infantry brigade of the *Adnan Division* that withdrew northward on 26 February positioned itself north of the *Medina Division*. The *Medina*'s sister division to its rear, the *Hammurabi AD*, began to withdraw to the northeast.

On 27 February, the corps commander told the 1st AD to slip south in zone to allow room for the 1st CD to move around it and attack due east to Objective Raleigh, hopefully to catch the *Hammurabi Division* before it could escape, and complete the northern arm of the encirclement.

A burned-out T-72 of the Republican Guard.



In the north, the T-72 tanks and BMPs of the Medina Division's 2d Brigade were set in revetted defenses. The 1st AD's 2d Brigade attacked them at about 1200, surprising the enemy preparing lunch. In what was probably the largest single engagement of the war, the 1st AD destroyed 61 Iraqi tanks and 34 personnel carriers.

plan. The 1st CD reached AA Horse at 1100, 27 February, and prepared to enter the fight. The corps commander personally linked up the 1st CD's G3, Lieutenant Colonel Jim Gunlicks, with the 1st AD commander, Griffith, to coordinate 1st CD's swing around the north.

The corps commander's plan for a northern envelopment was not to be, however, as the 1st AD found itself decisively engaged with the 2d and 14th brigades of the Medina Division, as well as with two unidentified heavy brigades, possibly from the 17th AD. Also, the brigade of the Adnan Division engaged the 1st AD from out of sector.³⁸ The 1st AD was not able to disengage and shift forces south to open a zone for the 1st CD, and Griffith so informed the corps commander at 1800. Franks told the 1st AD to finish its fight and be prepared to move the 1st CD around the north in the morning.³⁹

The 1st AD finished its fight with a vengeance. Artillery was cleared for cross-boundary fires and the brigade of the Adnan was pounded, as well as engaged by direct fire by the 1st AD's northern task force. The 1st AD's 1st and 3d brigades overran the recently repositioned 14th Mechanized

Brigade and the two unidentified heavy brigades before they could get their defensive positions established. The Medina artillery was quickly knocked out by counterfire. The eight large logistics sites that these forces were trying to protect were then seized.

In the north, the T-72 tanks and BMPs of the Medina Division's 2d Brigade were set in revetted defenses. The 1st AD's 2d Brigade attacked them at about 1200, surprising the enemy preparing lunch. In what was probably the largest single engagement of the war, the 1st AD destroyed 61 Iraqi tanks and 34 personnel carriers.

At about 1900, Franks ordered the 1st ID to stop its attack to the northeast toward Objective Denver and to reorient to the east. They would drive due east across the Basrah-Kuwait City highway, a road soon to be known as "the Road of Death" because of the thousands of Iraqi vehicles destroyed on it while fleeing north, and then turn north on the far side of the road. This would give the 3d AD, which was closing on its limit of advance at PL Kiwi, more room to attack eastward, or would permit the corps commander to commit the 2d ACR, trailing in reserve



(Top) M1 Abrams tanks of the 2d Armored Division (Forward) crossing the Al Jahra Road northwest of Kuwait City, 28 February 1991. (Below) 2d AD (F) tanks providing overwatch as an M2 Bradley bounds over a low ridge.

The next morning, the corps continued the attack. The 3d AD had already reached its limit of advance. The 1st ID seized Objective Denver and the 1st (UK) AD reached the Basrah-Kuwait City highway at Objective Oxford. . . . The 1st AD encountered remnants of the Medina and other Iraqi units, but did not encounter the RGFC's third heavy division, the Hammurabi, as it had fled northward, into the gunsights of the 24th ID. As units neared the Road of Death, all noticed the dense black smoke filling the air from the hundreds of burning Kuwaiti oil wells

behind 1st ID, to an attack up the west side of the Road of Death.

Meanwhile, the 1st ID's fast-moving cavalry squadron, the 1-4 CAV, had interdicted the Basrah-Kuwait City highway late in the afternoon, gathered up prisoners, and fought frequent, brief engagements all night with Iraqis trying to flee north.

As Franks was putting his plan into motion for the next morning, he received notification from the corps chief of staff at about 2345 that there was to be a 0500 cease-fire the next morning. He called the ARCENT commander for confirmation and learned of a possible cease-fire. A warning order to this effect was issued. Franks decided to cancel his plans for implementing his envelopment and for reorienting the 1st ID and told the corps' units to maintain contact in their currently assigned zones.

At about 0330, ARCENT called again. There would be a 0800 cease-fire, and the corps' attack was to resume in the morning with the goal of capturing or destroying as much Iraqi equipment as possible by 0800.

The next morning, the corps continued the attack. The 3d AD had already reached its limit of advance. The 1st ID seized Objective Denver and the 1st (UK) AD reached the Basrah-Kuwait City highway at Objective Oxford. The 1st AD, after 45 minutes of preparatory barrage, attacked at 0615, reaching PL Monaco by 0800, just short of its limit of advance, PL Kiwi. The 1st AD encountered remnants of the Medina and other Iraqi units, but did not encounter the RGFC's third heavy division, the Hammurabi, as it had fled northward, into the gunsights of the 24th ID advancing eastward in XVIII Corps' zone to the north. As units neared the Road of

Death, all noticed the dense black smoke filling the air from the hundreds of burning Kuwaiti oil wells east of the road, ignited by the fleeing Iraqis.

At 0800, after a final time check with a Global Positioning System, Franks announced the cease-fire over FM radio and received acknowledgement from all units.⁴⁰ The corps, after being

in almost constant combat since encountering the Tawakalna defenses the afternoon of 26 February, could now take a breather. But not for long. The post-cease-fire activities of the corps were nearly as arduous and continued for some time after the brief, but violent, ground campaign. **MR**

NOTES

1. To be completely accurate, the corps' 2d Armored Cavalry Regiment (ACR) actually attacked at 1430, with other elements following on at 1434 (1st Armored Division [AD], 1445 (3d AD) and 1500 (1st Infantry Division [ID]). Times are taken from unit after-action reports.

2. Statistics cited are from the VII Corps commander's 100-hour war briefing, prepared on 26 April 1991. These figures do not include the vast numbers of enemy prisoners of war taken, and abandoned enemy vehicles and supplies destroyed, after the cease-fire.

3. Casualty figures are from Appendix 3 (Casualties) to TAB M (Personnel) to VII Corps Desert Shield/Desert Storm After-Action Report (AAR). Equipment figures were provided by the VII Corps G4 to the corps historian on 3 March 1991.

4. Unless noted otherwise, enemy order of battle information and dispositions are taken from the VII Corps G2 Battlefield Reconstruction Study, "The 100 Hour Ground War: How the Iraqi Plan Failed," dated 20 April 1991. The enemy dispositions and unit identifications used in the article are those identified as a result of this study and are not necessarily the same units shown in the corps' intelligence assessments prior to, or during, the ground war. The corps' and theater's assessments of enemy unit locations and type were generally accurate, but some specific unit identifications turned out to be wrong. See page 85 of the Reconstruction Study for details.

5. The speed of the corps' attack was certainly a key factor, but other reasons contributed to the Republican Guard Forces Command's near paralysis. The lack of Iraqi intelligence and reporting made identifying the coalition main attack very difficult, and the poor Iraq communications, battered by the air campaign, further aggravated the problem. Also, the weak resistance of the frontline IDs did not buy much time for the Iraqi reserves to react. See the VII Corps G2 Battlefield Reconstruction Study, 23-24.

6. Data taken from the Executive Summary of VII Corps Artillery Desert Shield/Desert Storm AAR. (Further citations of unit Executive Summaries will be shortened to "Executive Summary, VII Corps AAR.")

7. While the focus of this article is the VII Corps' ground campaign, one must remember the effects of the air campaign that started on 17 January 1991. First, as with the first-echelon artillery, a great deal of enemy equipment was destroyed by air power, both combat vehicles and wheeled vehicles, with loss of the latter causing severe resupply problems. Second, morale plummeted after days of aerial pounding, and desertion rates in some units approached 50 percent by the start of the ground war. An active psychological operations effort, with leaflets urging Iraqis to surrender, accompanied the bombing, and many Iraqis were ready to surrender by the time the ground campaign commenced. See VII Corps G2 Battlefield Reconstruction Study for details.

8. Executive Summary, 2d ACR AAR.

9. Executive Summary, 1st ID AAR.

10. Executive Summary, Corps Artillery AAR. The 42d, 75th and 142d Field Artillery (FA) Brigades supported 1st ID, as did its own and the 1st (United Kingdom) AD Division Artillery (DIVARTY). The 210th FA Brigade supported the 2d ACR, and the 1st and 3d AD DIVARTY's were each augmented with a Multiple Launch Rocket System battalion.

11. The Corps operated three tactical command posts (TACs) during the ground campaign. The Jump TAC (two M577s) the TAC (five M577s) and the mobile command post (CP) (three M577s). Each CP had single or multichannel TACSAT and multiple FM radio. Each was capable of monitoring current operations. The Jump TAC and TAC would leapfrog forward with the western enveloping force during the ground war, and the corps commander would base him-

self at whichever CP was stationary and operational. The mobile CP positioned with the 1st ID in the breach area and later moved north through the breach, providing a CP for the corps commander to operate from if the situation in the breach area got critical, which it did not. VII Corps historian's notes.

12. Executive Summary, 1st ID AAR.

13. Executive Summaries, 1st ID and 3d AD AAR.

14. Executive Summary, 2d ACR AAR.

15. Executive Summary, 11th Aviation Brigade (Avn Bde) AAR and corps historian's notes.

16. The 1st Cavalry Division (CD) reverted to Army Forces Command control on 23 February, after being attached to VII Corps since 13 January for the specific mission of protecting the theater main supply route, Tapline (Trans-Arabian Pipeline) Road, from a possible Iraqi spoiling attack. The 1st CD would be the theater ground reserve until again attached to VII Corps at 0930, 26 February. Appendix 3 (Significant Activities) to TAB A (Mission) to VII Corps Desert Shield/Desert Storm AAR. Also Executive Summary, 1st CD AAR.

17. Comments about the weather are based on the weather summary provided in the VII Corps G2 Battlefield Reconstruction Study and upon the personal observations of the author, who served as the VII Corps historian during the campaign.

18. Executive Summary, 1st ID AAR.

19. Executive Summary, 1st AD AAR.

20. Executive Summary, 2d ACR AAR.

21. Executive Summary, Corps Artillery AAR. The 1st AD AAR reports the linking up of the 75th FA Brigade at 1200. In either case, the artillery was on hand in time for the battle against the Republican Guard.

22. Executive Summary, 1st ID AAR.

23. Executive Summary, 1st AD AAR.

24. Executive Summary, 2d ACR AAR.

25. Executive Summary, 3d AD AAR.

26. Executive Summary, 1st AD AAR and corps G2 Battlefield Reconstruction Study.

27. Corps historian's notes. As noted in Part I of this series of articles, the information concerning LTG Frederick M. Franks Jr.'s intentions and actions comes primarily from a series of interviews conducted by the author from 2 April to 24 May 1991. Some observations, such as this one, were personal, as I traveled with the corps TAC during the war and was able to observe the corps commander.

28. Corps historian's notes.

29. Executive Summary, 11th Avn Bde AAR.

30. Appendix 3 (Significant Activities) to TAB A (Mission) to VII Corps Desert Shield/Desert Storm AAR.

31. Executive Summary, 1st CD AAR.

32. Corps historian's notes.

33. Ibid.

34. Ibid.

35. Executive Summary, 1st ID AAR.

36. Executive Summary, 3d AD AAR.

37. Executive Summary, 1st AD AAR.

38. Ibid.

39. Corps historian's notes.

40. The Global Positioning System (GPS) gave a time check as well as a location. It was therefore used as the official time check during the campaign. The corps had about 3,000 GPSs.

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Full Circle

From World War II to the Persian Gulf

Colonel Harry Summers Jr., US Army, Retired
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The author finds many striking similarities between the US prosecution of the Gulf War and that of World War II. He analyzes the performance of the nation, its leadership and its Armed Forces in the wars of the last half-century against the enduring measure of the Principles of War. He draws several positive comparisons of US actions in World War II and the Gulf War.

PARADOXICAL as it may sound, from a strategic military perspective, the Japanese attack on Pearl Harbor on 7 December 1941 and the world war that followed is closer to us in 1991 than it has been for many years. One cannot fully understand the significance of the recent Persian Gulf War, for example, without an appreciation of World War II, for in a very real sense the Gulf War was closer to World War II than it was to either the Korean or Vietnam wars.

Indeed, the very leitmotiv of the Gulf War was the phrase, "for the first time since World War II," a refrain repeated time and again to describe the dynamics of that conflict. The reason for that time warp is that for more than a generation, the World War II experience was sidetracked, first by the so-called atomic age and then by the advent of the Cold War.

And it has been obscured by the shadows of

time as well. It is hard to believe today that when World War II began on 1 September 1939, the United States ranked 17th in the world in terms of military power. Not only were US military capabilities pitifully inadequate, America's military authority—the degree to which other nations in the world were deterred by the possibility of US military action—was in even worse shape.

In *Dragon By the Tail*, John Paton Davies Jr. tells how this military and political weakness prompted the Japanese attack on Pearl Harbor. An "old China hand" who served as political adviser to General Joseph W. "Vinegar Joe" Stilwell in the China-Burma-India theater in World War II (and who was later vilified as one of those who "lost" China), Davies decries what he called America's prewar "diplomacy by incantation." In response to Japanese expansion into China and Southeast Asia, America lacked what was

needed most, "a tremendous military force in being, backed by an evident will to use it." In its absence, Davies noted, "The American government complained, moralized and bluffed. That could not and did not stop the Japanese." It was a policy that lead inexorably to Pearl Harbor.¹

That pusillanimous policy was reinforced by American public opinion. Many believed we had been hoodwinked into involvement in World War I, and isolationistic sentiment in the United States was particularly powerful. Most Americans today believe that such antiwar activities as opposing US military aid for beleaguered allies abroad, anti-draft protests and student demonstrations to kick the ROTC (Reserve Officers' Training Corps) off college campuses were hallmarks of the Vietnam War. But such actions were common across America in the years immediately preceding Pearl Harbor.

These antiwar and isolationistic sentiments were so strong that when President Franklin D. Roosevelt asked for a declaration of war against Japan on 8 December 1941, he did not ask for a declaration of war against Germany for fear it would not pass the Congress. Adolf Hitler settled the issue on 11 December 1941 when Nazi Germany declared war against the United States. It was a strategic miscalculation that would not be equalled until almost a half-century later when Saddam Hussein also misread the United States and launched his blitzkrieg against Kuwait.

Tellingly, it was again the fecklessness of US foreign policy (this time toward the Middle East) and the lack of American military authority that precipitated that miscalculation. In East Asia in the 1930s, the failure of the United States to react to the Japanese conquest of Manchuria in 1931, to their invasion of China in July 1937, and to the December 1937 Imperial Japanese Navy's brazen daylight bombing and strafing of the USS *Panay*, a gunboat on Yangtze River patrol, convinced Japan that the United States lacked the backbone to resist its aggression.

The pattern was repeated in the Middle East. United States failure to react to the 1976 assassination of United States Ambassador Francis C. Meloy in Lebanon, to the killing of 241 Ameri-

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can servicemen when the Marine barracks in Beirut was bombed in 1983, to the kidnapping and murder of CIA station chief William Buckley in 1985, and to the kidnapping and murder of Marine Colonel William Higgins in 1989, convinced Saddam Hussein of US gutlessness.

While US military capabilities had increased dramatically, its military authority was as weak in August 1990 as it had been in December 1941. "America was regarded as a paper tiger," an Asian diplomat in Beijing told *Washington Times* reporter Michael Breen. "It was beaten like a wet rat in Vietnam and because of that we tended to underestimate it....[W]hile mindful of superior United States muscle [we] had until now figured that the United States would lack the will to fight."

"But the Gulf War changed all that," he said.² And the reason it changed was that for the first time since World War II the United States was able to decisively bring its combat power—the combination of physical strength and moral authority—to bear.

The Principles of War

A useful framework to analyze why and how that came about is provided by the nine classic principles of war, principles used by the American military since World War I as

tools for understanding the dynamics of war.

Objective. The first and most important of these principles is the *objective*, which poses the fundamental question: "What are you trying to

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accomplish with the use of military force?" In World War II, the answer was obvious—ensure the survival of the nation. But in the postwar world, the answer became more and more confused. The beginning of the atomic age and the advent of the Cold War shortly thereafter had seemingly changed everything.

With the explosion of the atomic bombs at Hiroshima and Nagasaki in 1945, all the feats of conventional arms up to that time were seemingly rendered meaningless. The very definition of military strategy—the use of battles to gain the political objectives of the war—was called into question. Nuclear destruction was so absolute, said the civilian academic nuclear theorists, that the primary atomic age utility of military forces was not in warfighting but in signaling national intentions.

This viewpoint was reinforced by the advent of the Cold War in 1946, and particularly by the later Soviet and Chinese acquisition of nuclear weaponry which, as will be discussed below, threw the United States on the strategic defensive. Instead of the clear-cut objectives of World War II—total victory, unconditional enemy surrender, occupation of the enemy homeland and the trial and execution of those responsible for the war—the objectives in both Korea and Vietnam were cloudy and unclear.

"My whole effort since Red China came in there has been to get some definition, military definition, of what I should do," complained General of the Army Douglas MacArthur, the former allied commander in Korea, during the 1951 Senate hearings following his relief from command.³ And the most damning statistic of the Vietnam War was the finding of Brigadier General Douglas Kinnard (later the Army's Chief of Military History) that "almost 70 percent of the Army generals who managed the war were uncertain of its objectives."⁴

While this lack of objectives was disastrous in a military sense, it was even more damaging in a political sense. As the great theorist of war Carl von Clausewitz had preached a century—and—a-half earlier, it is the object of war that determines its value, and it is that value which determines the sacrifices to be made in pursuit of it, both in magnitude and duration. In World War II, the object was national survival, a value so high that the American people supported the mobilization of the entire nation for war and willingly paid the price of over one million battlefield casualties. In both Korea and Vietnam, the objectives were never made clear and, as a result, the price in both wars—157,530 casualties in Korea, 211,324 in Vietnam—was deemed exorbitant and public opinion turned against the war.

And this equation held at the international level as well. The value of the objective—defeat of the Axis powers—was so immense that it brought such mortal enemies as the Soviet Union and the Western democracies together in common cause and held them together until Germany and Japan were totally defeated.

Instead of the powerful coalitions of World War II, the confusing objectives of the Korean and Vietnam wars spawned what *The New Republic*'s Charles Krauthammer called "pseudo-multilateralism."⁵ In both cases, the host country and the United States carried the majority of the load and allies contributed only token forces to give the conflict an international appearance.

For example, at their peak strength in July 1953, United Nations (UN) ground forces in Korea included 590,911 from South Korea,

302,483 US Army and Marine Corps personnel and 39,145 from other UN countries. In 1969, the peak year for United States and allied participation in the Vietnam War, South Vietnamese forces stood at 897,000, US forces at 543,400 and allied "Free World Military Forces" at 68,889.⁶

By comparison, in the Persian Gulf War some 40 allied nations furnished over 205,000 troops, almost 28 percent of the 737,000 men and women who fought the war.⁷ The reason for the difference is that for the first time since World War II, there was a genuine coalition effort. What caused that alliance to coalesce was an objective so powerful that, as in World War II, it could bring former enemies together to work toward a common goal.

That objective was clearly articulated—the Iraqi invaders must withdraw from Kuwait, the legitimate government there must be restored, and regional peace and security must be secured. For the first time since World War II, the permanent members of the UN Security Council—the allied partnership that fought World War II—stood united to oppose aggression. In the past, the Soviet Union could have been expected to veto any action against its erstwhile ally, Iraq. But on 2 August 1990, it voted in favor of UN Security Council Resolution 660 to condemn Iraq's invasion of its neighbor.

Like the Japanese attack on Pearl Harbor almost a half-century earlier, that action marked a sea change (that is a change of enormous magnitude) in the international strategic environment. Taking advantage of that change, US diplomatic efforts rapidly forged a political and military alliance against Iraq in the UN Security Council, among Arab nations in the Middle East and among America's European allies.

The changes were equally dramatic at home. For the first time since World War II, the American people were mobilized for war. President George Bush not only waged a major campaign to drive home the objectives of the war but, in a politically courageous move, made the decision to call America's reserve military forces to active duty. As a result, the entire nation was

involved in the war and, as in World War II, that made all the difference in the world. "The early decision to call up the reserves...turned out to be a major catalyst in consolidating American public opinion firmly behind our strategy in the gulf," noted General Crosbie E. Saint. "The moral ascendancy that US forces had when they knew their country was behind them cannot be discounted."⁸

And in the KTO (Kuwaiti Theater of Operations), the clarity of the political goals made possible the formulation of a coherent military campaign to achieve those objectives. Instead of the battlefield stalemates and negotiated

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settlements of the Korean and Vietnam wars, the war in the Persian Gulf, as in World War II, was won by force of arms on the field of battle.

The Offensive. It was won by force of arms because for the first time since World War II, the US military was able to apply a key principle of war, the *offensive*, which holds that the best way to win a war is to carry the fight to the enemy, destroy his armed forces and thereby break his will to resist. That is the way America has fought most of its wars, especially World War II. Indeed, to most Americans, World War II is the very paradigm of war, the model against which all subsequent wars are compared.

But in November 1950, when the Chinese Communist Forces (CCF) massively intervened in the Korean War, the strategic offensive was abandoned. Fearful of provoking a nuclear war



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with the Soviet Union and becoming inexorably involved in a land war with China, the US national policy changed from "rollback and liberation" (the policy it had pursued until that time) to "containment." US military strategy, which by definition must be in consonance with US national policy, changed from the strategic offensive to the strategic defensive, a posture it would maintain throughout the Korean and Vietnam wars.

Reaffirmed by Dwight D. Eisenhower during the 1956 Hungarian uprising and endorsed by every president since, as a national policy, containment well served long-term US interests. It not only avoided a nuclear confrontation with China and the Soviet Union, but forced communism back upon itself as well.

As American diplomat George Kennan had predicted in his famous 1946 "Long Telegram" from Moscow, containing Communist expansion and allowing the contradictions inherent in Marxist-Leninist doctrine to destroy itself from within proved to be the best strategy to achieve victory in the Cold War.⁹ But the consequences for military strategy were never well understood.

By forcing the military onto the strategic defensive, the policy of containment guaranteed that war could not be won on the battlefield. The best possible result was stalemate. And that's precisely what happened in both the Korean and Vietnam wars. The Korean battlefield was stalemated in 1951 in the wake of the CCF's abortive 27-division spring offensive. Two years of diplomatic negotiations ended with the Korean Armistice of 1953.

Likewise in Vietnam, the battlefield was again stalemated, this time in the wake of the North Vietnamese Army/Viet Cong's disastrous 1968 Tet Offensive. Five years of diplomatic negotiations ended with the Paris Peace Accords of 1973.

Because they did not fit the World War II paradigm, both of these wars were unpopular with the American people. The Korean War was seen as a tie at best, and the Vietnam War was seen as a national disgrace after the North Vietnamese violated the "peace" agreement with their tank-led, multidivision cross-border blitzkrieg that overran South Vietnam in the spring of 1975.

Almost unnoticed, especially by Saddam Hussein, was that with the end of the Cold War the US policy of containment had been obviated. With Soviet cooperation in the United Nations, the 40-year constraint imposed by fear that massive application of military force would provoke a nuclear confrontation no longer

applied. Thus, for the first time since World War II, the United States was once more on the strategic offensive, and the full fury of America's military might was brought to bear to destroy the Iraqi military on the battlefield and thus break their will to resist.

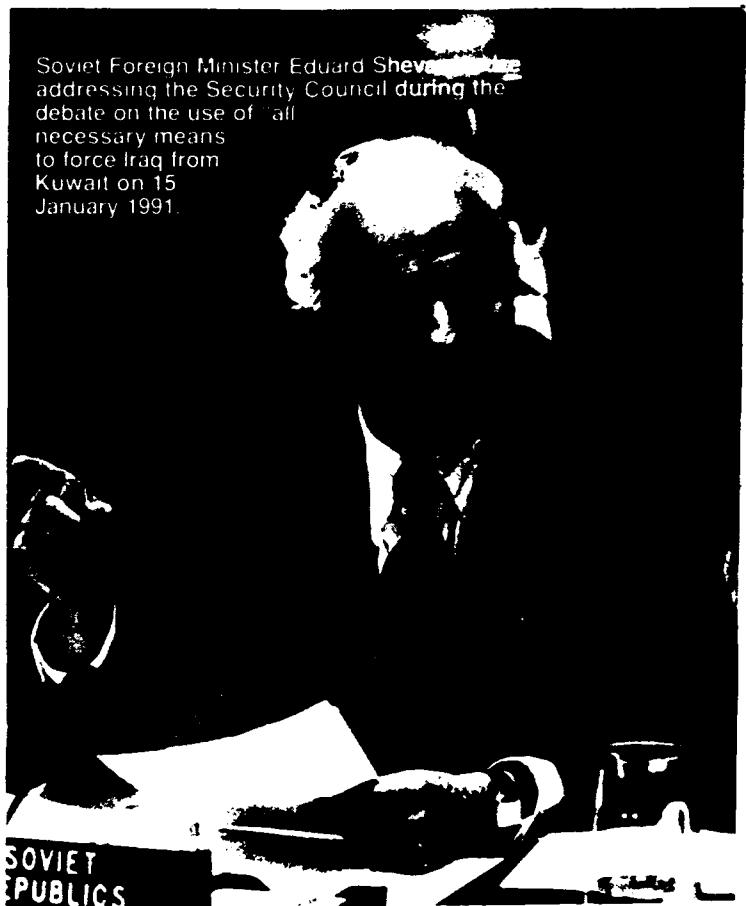
Mass and Economy of Force. The reason the United States was able to bring the full fury of its military to bear was that, for the first time since World War II, it was able to apply the principles of *Mass and Economy of Force*. These two principles of war are reciprocal—*Mass* dictates that one should mass—that is bring the bulk of one's forces to bear—on the primary objective and use an *Economy of Force* against secondary objectives.

For a half-century, the United States massed its forces in Europe and used an economy of force elsewhere in the world. Even though American military involvement in World War II began with the Japanese attack on Pearl Harbor, America massed its forces in Europe to defeat Nazi Germany and used an economy of force against Japan.

The same thing happened in the Korean War. Believing that the North Korean invasion of South Korea in June 1950 had been orchestrated by Moscow as a diversion and that the Soviet main attack would come in Europe, the United States sent more forces to bolster NATO defenses in Europe than it did to fight the actual war in Korea. And although the United States did mass its troops in South Vietnam, it never devoted full-time attention to that conflict until it was too late. In 1967, for example, two years after our ground combat involvement in Vietnam began, the Army's Command and General Staff College taught no classes on Vietnam. Its attention, like that of the entire Defense Department, was still concentrated on countering the Soviet threat in Europe.

But in the Gulf, for the first time since World War II, the United States was able to mass both physically and mentally on the field of battle. No longer was there the need to devote the majority of its assets and attention to guard against the Soviet threat.

Soviet Foreign Minister Eduard Shevardnadze addressing the Security Council during the debate on the use of "all necessary means to force Iraq from Kuwait on 15 January 1991.

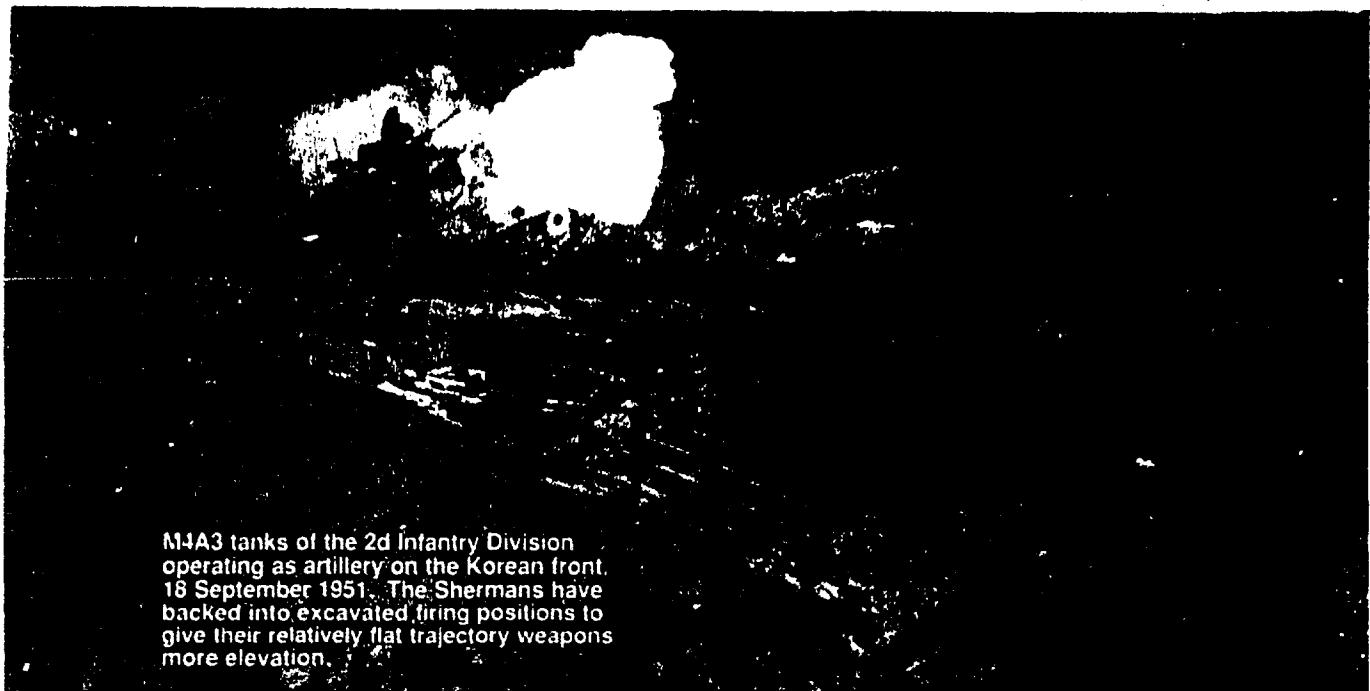


SOVIET
PUBLICS

For the first time since World War II, the permanent members of the UN Security Council . . . stood united to oppose aggression. In the past, the Soviet Union could have been expected to veto any action against its erstwhile ally, Iraq. But . . . it voted in favor of UN Security Council Resolution 660 to condemn Iraq's invasion of its neighbor.

With the Soviet Union now on its side, the United States could commit not only its contingency XVIII Airborne Corps and 1st Marine Expeditionary Force, but also its heavy divisions at home previously earmarked for NATO reinforcement. Most important, it could withdraw its VII Corps from Europe (where it had been stationed for decades to guard against Soviet attack) and also move it to the Gulf, where its 1st and 3d Armored divisions and 2d Armored Cavalry Regiment could provide the muscle for the main attack.

Maneuver. America's ability to mass was contingent on its ability to maneuver, for at the strategic level this principle has to do with the movement and transport of military forces to



M4A3 tanks of the 2d Infantry Division operating as artillery on the Korean front, 18 September 1951. The Shermans have backed into excavated firing positions to give their relatively flat trajectory weapons more elevation.

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the critical point on the battlefield. It is an especially important principle for the United States, for in strategic terms America is a world island which must first traverse the oceans to bring its forces to bear. Therefore, sealift and airlift are essential.

In World War II, the first task was to seize control of the oceans so that a sea bridge could be constructed to bring America's mobilization capability to bear. Then the transport had to be built to move America's military into action. It was not until the North African invasion in November 1942, almost a year after Pearl Harbor, that US military ground forces first went into battle against Nazi Germany. But despite the almost total decline in the US Merchant Marine since World War II, the Gulf buildup was completed in six months. One reason was strategic airlift, a negligible factor in World War II. In the Gulf War, the Military Airlift Command flew more than 15,800 missions, moving more than a half million passengers and almost a half million tons of supplies to the Gulf. These planes included not only the cargo aircraft of the active Air Force, Air National Guard and Air Force

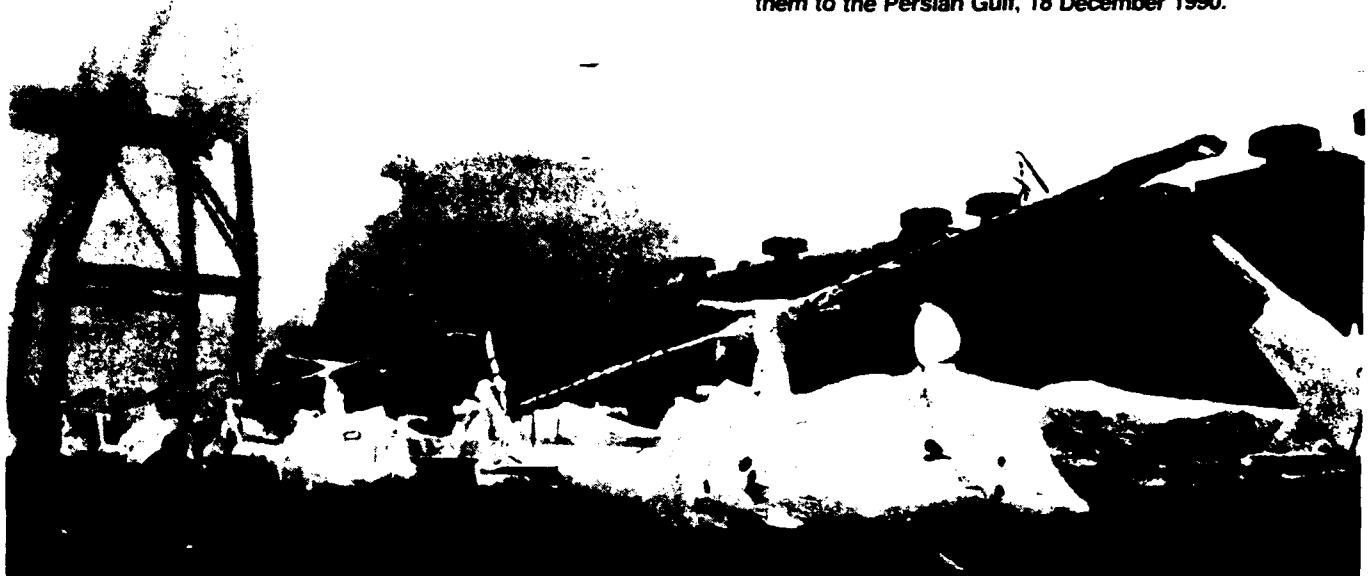
Reserve, but also some 55 civilian transports of the Civil Reserve Air Fleet (CRAF), which for the first time was mobilized for war.¹⁰

But, as in World War II, the majority of supplies moved by sea. "It was the quickest and largest military sealift buildup since World War II," said General H. Norman Schwarzkopf. "an 8,000 mile, 250-ship haze-grey bridge, one ship every 50 miles from the shores of the United States to the shores of Saudi Arabia. And they offloaded some nine million tons of equipment and petroleum products for our forces."¹¹

Security and Surprise. According to the experts, surprise is supposed to be a rarity at the strategic level of warfare. But three of America's last four wars began with a surprise attack—the December 1941 Japanese sneak attack on Pearl Harbor, the June 1950 North Korean invasion of South Korea and the August 1990 Iraqi invasion of Kuwait.

While these surprises are well known, less noted is the attacker's surprise at the ferocity of the American response. "If we surprise the enemy with faulty measures," remarked Clausewitz, "we may not benefit at all, but instead suffer

**Dense fog engulfs 1st Infantry Division
helicopters and the transport that will take
them to the Persian Gulf, 18 December 1990.**



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sharp reverses." That was certainly the end result of the Japanese attack on Pearl Harbor, the North Korean attack on South Korea and the Iraqi attack on Kuwait. The reason, as Clausewitz noted, "is that only the commander who imposes his will can take the enemy by surprise," and in every case it was the American will that prevailed.

"The worse the situation is, the better it may turn out," Clausewitz said.¹² The surprise attacks on Pearl Harbor, on South Korea and on Kuwait did not break the American will. They energized it. Saddam Hussein, like Hideki Tojo and Kim Il Sung before him, had been deceived as to the true nature of the American people. Ironically, the unintended instrument of that deception had been the American media.

Security is the reciprocal of the principle of surprise, and the conventional wisdom is that the media are the main threat to American military security. The problem of achieving strategic surprise, says the Army's strategy manual, "is compounded in an open society such as the United States, where freedom of the press is ensured."¹³ But the conventional wisdom is wrong.

Stories about US pacifism, American isola-

tionism, draft resistance and antiwar protests on the eve of World War II, and particularly accounts of President Roosevelt's 1940 campaign promises not to get involved in the war, certainly helped to convince Japan and Germany that the United States lacked the backbone to fight. And similar stories about President Harry Truman's drastic cuts in the American defense budgets and partisan political wrangling over US Asian policy encouraged North Korea in its aggression.

Likewise, "At every juncture in the Persian Gulf war," noted *The New Republic's* Fred Barnes, "Saddam sold Bush short. Maybe he'd read some of the wimp stories in the American press."¹⁴ There was more than a little truth in that remark.

On the battlefield itself, security measures in the Gulf War were tighter than they had been since World War II, and newsmen wistfully talked about "the good old days" during the Vietnam War when access to the front was relatively unrestricted. But even though there had been almost no violations of security by newsmen in World War II, Korea or Vietnam, access to the Gulf battlefield was severely restricted. These tight security measures aided deception of the enemy and facilitated operational and

tactical surprise. But they came at a price.

In its discussion of the principle of security, the 1981 edition of the Army's strategy manual warned that "at the strategic level...implementation of...security measures must be balanced against the need to prevent them from severing

Security measures in the Gulf War were tighter than they had been since World War II, and newsmen wistfully talked about "the good old days" during the Vietnam War when access to the front was relatively unrestricted. . . . Security restrictions notwithstanding, the Gulf War was the most thoroughly reported conflict since World War II.

the link between the American people and its Army."¹⁵ That caveat fell out of subsequent editions, but its truth was revealed once more during the Gulf War. The Navy claimed that although it had flown 23 percent of the war's combat missions, that fact was almost unknown. The reason was that the Navy avoided the press.

Security restrictions notwithstanding, the Gulf War was the most thoroughly reported conflict since World War II. "A Gallup public opinion poll in early 1991 showed 85% of the public had a high level of confidence in the military," noted Rear Admiral Brent Baker, the Navy's Chief of Public Affairs. "Where did the public get its perception of the military's professionalism? They got it from news media reports."¹⁶

Simplicity. "If one has never personally experienced war," Clausewitz remarked, "everything looks simple; the knowledge required does not look remarkable, the strategic options are so obvious that by comparison the simplest problem of higher mathematics has an impressive scientific dignity." But, he went on to say, "Everything about war is very simple, but the simplest thing is difficult."¹⁷

The task imposed by the principle of *simplicity* is to take this difficulty and translate it into terms as simple as it appears on the surface. Thus it

serves as a kind of litmus test against which the other principles can be measured. Given that test, the war in the Gulf, as with World War II, was simplicity itself compared to the Korean and Vietnam Wars.

For the first time since World War II, the political and military *objectives* of the war were clear and unambiguous, and progress toward their attainment could be followed on a map. Once again the war was waged on the strategic offensive with no sanctuaries and political restrictions to hamper the application of force. Because for the first time since World War II the entire world, especially including the Soviet Union, was united against a common enemy, the United States could mass its forces on the battlefield, leaving only an *economy of force* behind to guard its other interests in the world. Thus all of its *maneuver* airlift and sealift assets could be applied to the task at hand.

Tight security control of the news media, as in World War II, helped ensure operational and tactical surprise on the battlefield. Free of its Cold War convolutions, the military was able, for the first time since World War II, to decisively apply the principles of war. Nowhere was this more true than with the principle of *unity of command*.

Unity of Command. "Who will command the force?" That is the question posed by *unity of command*, the final principle of war. As in World War II, the number of nations involved and their political sensitivities made it obvious that the textbook solution—"ensure unity of effort under one responsible commander"—would not work. In World War II, this problem was solved with the creation of the "Combined Chiefs of Staff" in Washington, where US and British commanders shaped coalition strategy and provided strategic guidance for the conduct of the war.

That experience provided the model for the Gulf War. In an agreement reached by Secretary of State James A. Baker and King Fahd of Saudi Arabia in November 1990, a similar system was created in the Gulf. Schwarzkopf, the commander of all US forces in the gulf, would work in tandem with Saudi Lieutenant General Khal-



(Clockwise from right) Secretary of Defense Cheney, Generals Powell and Schwarzkopf meeting in Saudi Arabia and President Bush at Arlington National Cemetery.

Authority flowed from the president, as Commander in Chief, through Defense Secretary Richard B. Cheney and General Colin L. Powell, the chairman of the Joint Chiefs of Staff, to Schwarzkopf, the CINC of the US Central Command. . . . And then there was the president himself. In the Gulf War, as in World War II, there was no reference to "national command authority," a Vietnam-era euphemism for whoever, if anybody, was making the key decisions for the war. . . . As was the case with Roosevelt in World War II, there was no doubt who was running the war.

id bin Sultan, who commanded all Saudi and Arab forces there. All allied forces in the Gulf would be under one of these two headquarters.

While Schwarzkopf and Khalid were given authority over operational matters, the decision of when to launch the air and ground campaigns, as in World War II, remained "at the highest political levels." The doubts that had been raised as to whether this system would work were dispelled on the first day of the air war when aircraft of seven different nations made a coordinated air strike on Iraq. While there was no one single commander, there was no doubt that unity of effort had been achieved.

And unity of effort had been achieved within the United States military chain of command as well. Command and control during the Vietnam war had been disastrous. Unlike General Eisenhower in World War II, General William C. Westmoreland was not the theater commander. That post was held by the Commander in Chief, Pacific Command in Honolulu, 6,000 miles from the battlefield.

The Goldwater-Nichols Department of Defense Reorganization Act of 1986 changed all that. Returning to the successful relationship of World War II, that law strengthened the role of the chairman of the Joint Chiefs of Staff and the role of the combatant CINCs (commanders in chiefs) in the field. The result was that when the war in the Gulf began, there was a clear-cut chain of command.

Authority flowed from the president, as Commander in Chief, through Defense Secretary Richard B. Cheney and General Colin L. Powell, the chairman of the Joint Chiefs of Staff, to Schwarzkopf, the CINC of the US Central Command.

Like Eisenhower in the European Theater of Operations in World War II, Schwarzkopf was in total command of all US forces in the Kuwaiti Theater of Operations. His ground component commander was the commander, Third Army. His air component commander was the commander, Ninth Air Force; his Marine component commander the commander, 1st Marine

Expeditionary Force; and his Naval component commander the commander, Seventh Fleet.

In Washington, Powell was able to reprise the World War II roles of Army chief of staff General George C. Marshall and Admiral Ernest J. King, the chief of naval operations. Working closely with his civilian superiors, Powell provided strategic direction to the field commander without attempting to micromanage the war.

And then there was the president himself. In the Gulf War, as in World War II, there was no reference to "national command authority," a Vietnam-era euphemism for whoever, if anybody, was making the key decisions for the war. In a remarkable transformation, Bush changed from the "wimp in the White House" to one of America's most effective wartime presidents. As was the case with Roosevelt in World War II, there was no doubt who was running the war. As the Constitution provided, it was President George Herbert Walker Bush, the Commander in Chief of the United States.

But What Good Came of it at Last?

The bottom line for all wars is little Peterkin's question to his grandfather in Robert Southey's famous poem about the Battle of Blenheim—

"But what good came of it at last?"¹⁸ The dreams for lasting peace following the end of World War II were dashed by the onset of the Cold War that followed closely on its heels. But the war in the Gulf may provide yet another chance.

"[F]or the first time since World War II, the international community is united," said Bush in his State of the Union address in January 1991. "The leadership of the United Nations, once only a hoped-for ideal, is now confirming its founders' vision." In words that could have been spoken almost verbatim in 1945, Bush laid out the charge for the future. "And when we [succeed in the Gulf]," he said, "the world can . . . seize the opportunity to fulfill the long-held promise of a new world order where brutality will go unrewarded and aggression will be met with collective resistance."

"Yes, the United States bears a major share of leadership in this effort. Among the nations of the world, only the United States of America has both the moral standing and the means to back it up. We are the only nation on this Earth that could assemble the forces of peace."¹⁹

Whether this time we can indeed form a new world order remains to be seen. The only thing we know for sure about the future is that the past is still prologue. **MR**

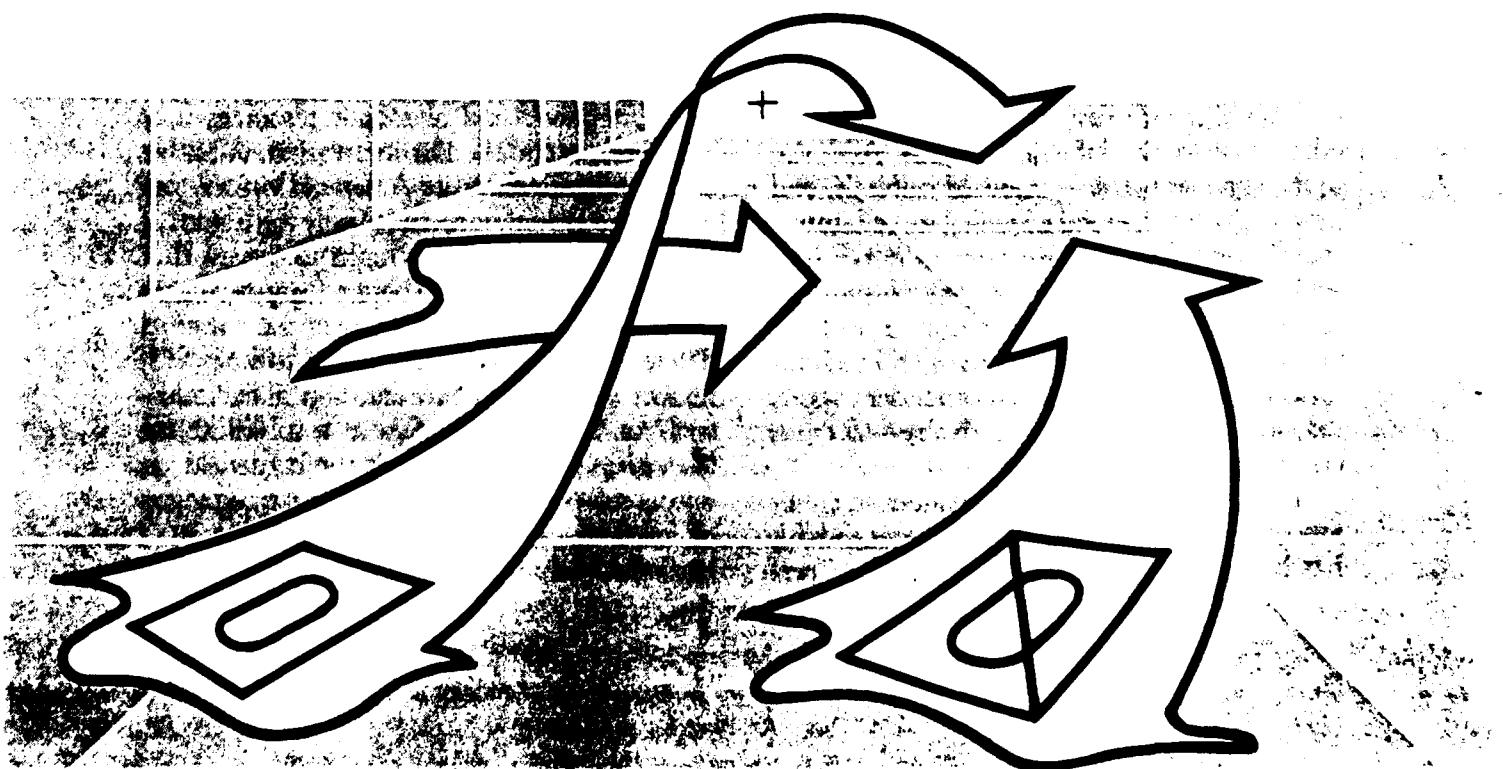
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PERSPECTIVES ON AirLand Operations

As the revision of the Army's AirLand Operations doctrine begins to take shape, many systems, areas and ideas are being reviewed. The following articles present three different components of this doctrine. The first offers an examination of the frequently misunderstood concept of maneuver warfare and how recent developments in battlefield dynamics could find it as the centerpiece of future operations. The next article discusses how mobility has been a decisive element in achieving victory throughout the history of warfare; the use of airmechanization by other nations; and the possibility of using a family of vehicles to increase a unit's mobility. The final article examines the Combined Arms in a Nuclear/Chemical Environment series of tests conducted prior to the invasion of Kuwait. It highlights results of the tests and the impact of nuclear, biological and chemical warfare on the stages of AirLand Operations.



Redefining Maneuver Warfare

Captain Richard D. Hooker Jr., US Army

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FOR MANY leaders in the Army today, just the mention of "maneuver warfare" raises hackles. Many officers, resentful of the strong arguments sometimes used by civilian reformers, react viscerally to maneuver warfare thinking. Many others regard it as a call for battlefield mobility—something everyone supports—or as just another name for "fighting smart." Maneuver warfare is much more. It is an approach to warfare that offers more for less, a compelling reason to think hard about it as the Army looks at major force reductions in the next five years. It may be the Army's best chance to reach for another, higher level of excellence even as our physical resources dwindle.

Why Maneuver Warfare?

Writing in *The National Interest* in 1986, the eminent political scientist Samuel Huntington argued that American performance in war reflected industrial and technological strengths, not commitment to military excellence.¹ Many others have sounded the same refrain. America, so the argument goes, is unsuited culturally and historically for the kind of self-absorbed, introspective professionalism that is needed to achieve a cohesive, highly skilled, professional military force. Far better, Huntington concluded, to rely on American mass and technological supremacy—with all its attendant waste, redundancy and interservice rivalry—to crush our opponents:

"By and large, the virtues of American civilization have not been the military virtues and this has been reflected in American military per-

formance. . . [o]ne should not be swept off one's feet by the romantic illusion that Americans can be taught to fight wars the way Germans, Israelis or even British do. American strategy, in short, must be appropriate to our history and institutions, both political and military. . . bigness, not brains, is our advantage, and we should exploit it."²

As a profession we must reject this line of reasoning. The commitment to excellence in the common defense is an open-ended contract, requiring constant reexamination and improvement. Military virtues are not somehow confined to specific cultures, nor does institutional commitment to self-analysis and self-improvement challenge, in any way, the military's strict subordination to the will and control of the polity. As resources become constrained, the military services will have no choice but to find ways to fight more effectively with smaller, leaner forces. Past criticism of American reliance on mass, firepower and abundant resources may have been accurate. But innovation, initiative and competitiveness are American virtues, too.

Maneuver warfare seeks to apply the lessons of the past to American strengths to suggest that what is good can be even better. Any discussion of maneuver warfare must state at the outset its differences from other approaches to war. Maneuver warfare is directly antithetical to "industrial" or "attrition" warfare as a substitute for leadership, skill or energy on the battlefield. It rejects set-piece, linear, overly structured views of warfare, especially the kind of patterned battlefield behavior that is the peculiar product

of the "school solution" type of officer education. Maneuver warfare suggests that our institutional approach to war can be refined, improved and sharpened to make us more effective with fewer resources. Maneuver warfare offers some intriguing answers to the fundamental question: how can we get better with less, and still be true to our historical, cultural and traditional roots?

What Is Maneuver Warfare?

Maneuver warfare is best defined as a thought process that seeks to pit strength against weakness to break the enemy's will. Although dynamic movement is found in most historical examples of maneuver warfare in action, it is a mistake to conclude that maneuver warfare is nothing more than rapid movement to attack a flank. Identifying or creating weaknesses, followed by rapid exploitation to shatter the enemy's will to fight, is the essence of the maneuver warfare concept. Viewed in this light, warfighting becomes something very different from applying "principles" to mass "systems" to "service targets." Instead, it appears as a clash of wills, with victory going to the side that destroys the opponent's will to resist. The essence of maneuver warfare is captured in the picture of the boxer versus the puncher or the martial artist versus the brawler.

Maneuver warfare is not new, although the work of modern students and practitioners has helped to crystallize and codify maneuver warfare as a coherent body of thought. Though the German and Israeli armies are often cited as practitioners of maneuver warfare, it is not an exclusively "foreign" concept. Anthony Wayne, Stonewall Jackson, Ranald Mackenzie, Emory Upton, George S. Patton and many other American commanders used a maneuver warfare thought process with outstanding success. Maneuver warfare teaches leaders how to think, not what to do. This is its first and most important contribution to the theory and practice of warfare.

Maneuver warfare is much more than doctrine defined as "how to fight," though doctrine is a necessary first step. Maneuver warfare represents a comprehensive, articulated approach to

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warfare—more accurately described, perhaps, as "how to think about fighting"—supported by institutional structures that teach leaders how to "think" and "do" maneuver warfare. There are, of course, nuances and shadings and even outright disagreement on a number of points. But in general, maneuver warfare is surprisingly consistent in its essentials.

Fundamentals

It should be stated at the outset that maneuver warfare is result-oriented, not process-oriented.³ Too often we evaluate process, confusing it with result. Of course, we must use a standard professional language, but what matters most is the outcome, not the process used to achieve it. This argues for wide latitude and discretion in method but strict accountability for results.

The first commandment in maneuver warfare is "attack weakness, avoid strength." Appreciation of strength and weakness is as much an art as a science, one reason (among many) why maneuver warfare cannot be "taught" as a set of techniques or tactics. Weakness is often, but not always, the flanks or rear. It could be the enemy's command and control system, his fire control system, his logistic system or a unit boundary.

In analyzing enemy capabilities and vulnerabilities, commanders should focus on the enemy first, and only then on terrain. A terrain focus for its own sake often leads commanders to assign terrain objectives, which may or may not be relevant to the problem at hand. This leads to time-consuming advances from terrain feature to terrain feature, making it difficult to move, think and act faster than the enemy.

Maneuver warfare is directly antithetical to "industrial" or "attrition" warfare as a substitute for leadership, skill or energy on the battle field. It rejects set-piece, linear, overly structured views of warfare, especially the kind of patterned battle field behavior that is the peculia product of the "school solution" type of officer education.

In maneuver warfare, the ultimate objective is destruction of the enemy's will to resist, not his physical destruction. This is obviously a psychological and moral, as well as a physical, effect. It also appears to contradict a fundamental premise of modern war, namely that the destruction of the enemy's forces should be the primary object of combat.

The contradiction is more apparent than real. Carl von Clausewitz defined destruction as putting the enemy "in such a condition that they can no longer carry on the fight".⁴ Alexander A. Vandegrift observed that "positions are seldom lost because they have been destroyed, but almost invariably because the leader has decided in his own mind that the position cannot be held." Only rarely will an enemy resist to the point where each of his positions must be physically destroyed.

More often, hard blows—combined with uncertainty, multiple perceived threats, pressure against weak points and similar stresses—will break his will. In the recent Gulf War, the bulk of the Iraqi forces confronting the allies disintegrated when faced with rapid blows delivered almost simultaneously on their front, flanks and rear. One hears little criticism of the almost bloodless victory that quickly followed.

The art of warfare was once said to consist of forcing the enemy's surrender without the necessity of battle. Maneuver warfare does not offer victory by avoiding battle, although brilliance in planning and execution will sometimes bring about the early collapse of the enemy.⁵ We should not expect an opposing force to capitulate

without being struck hard and decisively.⁶ Where and when the blow lands—and how this decision is reached—is the essence of maneuver warfare.

How does a force destroy the enemy's will to resist without seeking to crush him with fire? A good start is to generate uncertainty and fear by hitting identified weak points with unexpected and indeterminate threats. Vertical envelopment, sudden attacks from the flank and rear, battlefield deception, jamming, psychological warfare, infiltration and other forms of the unexpected are time-tested techniques that seek to unhinge the enemy's sense of control over the situation. Fear and uncertainty magnify any threat. The technique selected will differ with the situation, but the principle is the same: to target the enemy's balance and cohesion by hitting his weaknesses—physical, moral or psychological—with multiple, unexpected blows.

Some critics conclude that this focus on "stunning" the enemy encourages a lack of aggression or willingness to engage the enemy. Maneuver warfare in no way implies a lack of violence or hard fighting. On the contrary, in its rapidity and offensive frame of reference, it demands leaders who understand organized violence intimately. Maneuver is not glorified at the expense of firepower nor does it serve firepower. Firepower creates conditions that support the maneuver concept. To assume otherwise is to be drawn into a technical frame of mind where warfare becomes an exercise in targeting and neutralizing target sets and arrays by massing systems—the very essence of attrition warfare.

Such methods may prevail over weaker opponents, although at great cost in resources. They will almost certainly fail against a comparable or superior opponent who can play the attrition game better than we can. The enemy's fighting forces remain the principal objective. Maneuver warfare means attempting to create conditions under which the enemy can be "knocked out" without becoming locked in an attritional exchange.

Maneuver deserves precise definition. Maneuver is not simply movement about the battle-



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field; it is relational movement, movement in relation to the enemy.⁷ Speed and distance are not relevant except as they cause the enemy to do something you want him to do. Maneuver warfare preaches the ability to move faster than the enemy expects and faster than he can react. Maneuver fits conceptually into our theory when it advances the goal of attacking weakness with strength to break the enemy's will. For example, a tactical or operational envelopment against a forewarned enemy who has shielded his flank meets the standard definition of maneuver but falls short of the essence of maneuver warfare. A sudden frontal attack, delivered at night against an enemy whose reserves have been drawn off to a threatened flank, preceded by infiltration groups and coinciding with an air strike against the enemy command post, shows a maneuver warfare thought process even though the technique used is the frontal attack.

Maneuver warfare seeks to operate consistently faster than the opponent can react, so that a given response must inevitably lag behind one's own decision cycle. Out-cycling the enemy en-

sures speed and surprise relative to the enemy, keeping the initiative out of the enemy's hands. But it also does more. As the enemy attempts to respond to what has already happened—not what is happening and is about to happen—confusion, uncertainty and doubt set in to magnify every problem and threat. The inability to respond to a very fast decision-action cycle quickly leads to frustration, system overload and panic.⁸

Command and Control

Maneuver warfare accepts, even embraces, a nonlinear battlefield where positive control measures and detailed coordination are reduced or absent, while initiative and innovation are encouraged at the lowest possible levels. The perception that maneuver warfare demands surrender of control to junior subordinates is a major concern for many critics. Maneuver warfare does not mean an abdication of command authority and responsibility, but it does prescribe a different approach to command and control leading to greater speed, initiative and flexibility. Command and control in maneuver



Leaders at each level should know what the commander's intent is at least two levels above. If they do, the role of the smaller unit in the overall plan makes sense and leaders have a conceptual framework to use when the situation changes or when unforeseen opportunities present themselves.

wartime is based on the following "filters".

Mission-type Orders. Called *Auftragstaktik* in the German army, this concept requires commanders to articulate a precise mission statement, but leaves the "how" in the hands of subordinates.¹ The mission takes on meaning when it is explained as a function of the commander's intent. Only then can the subordinate leader really grasp what the commander is trying to achieve. Leaders at each level should know what the commander's intent is at least two levels above. If they do, the role of the smaller unit in the overall plan makes sense and leaders have a conceptual framework to use when the situation changes or when unforeseen opportunities present themselves.

When clearly understood, intent replaces detailed and restrictive instructions and permits subordinates to understand what the higher level commander is trying to accomplish. Subordinates are allowed, even encouraged, to depart from the original scheme if changed circum-

stances require a different response to satisfy the commander's intent. Sometimes called "trust tactics", mission-type orders are demanding of commanders, of subordinates, of the whole system of command. In armies and units that trust the leadership, intelligence and initiative of their junior leaders, much more is possible than before.

Focus of Effort. Every operation must have a focus of effort, chosen for a specific purpose and clearly understood by all. Usually expressed by unit ("focus of effort is 1st Brigade"), the focus of effort is not synonymous with the objective or the mission. While it will often coincide with the main attack, the focus of effort describes where the commander believes he can force a decision. The unit designated as the focus of effort (in German, *Schwerpunkt*) is given the bulk of available fire, close air, engineer and other kinds of support and is supported by sister units. It reinforces the thrust of the commander's intent. When necessary to support the intent of

101st Airborne Division (Air Assault) troopers exiting Black Hawk during a training exercise



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a higher level, the commander may switch the focus of effort at any time to adjust to a changing situation or exploit opportunity.

Surfaces and Gaps. These are concepts, not physical constructs. Surfaces represent enemy strengths or hard spots. Gaps are weak or vulnerable points. Reconnaissance and intelligence "pull" us toward gaps and away from surfaces. Reconnaissance pull may reveal an opportunity not realized during the planning phase. A strong, thrusting reconnaissance effort will probe the enemy for gaps while screening the main effort. If this reconnaissance justifies a departure from the original plan, for example by identifying an undetected gap that can be exploited, previous coordination and planning must not shackle subordinate commanders. They must be free to report and exploit if the friendly force is expected to move, think and strike consistently faster than the enemy. If they cannot, we are led back to a reliance on mass and fires to fix and crush the opponent.

This alternate approach to command and control provides a supporting environment for

operations. While different from more traditional views, it does not imply an absence of command and control. But instead of micro-managing, the commander manages by exception, by monitoring (instead of monopolizing) radio communications and selectively intervening with decisions that only the commander can make, such as committing the reserve or shifting the focus of effort. Otherwise, silence means consent. While the reins of command do not come together in the hands of the commander as fully, since subordinate leaders have the right (in fact, the duty) to act on their initiative, the command is actually more focused on the objective and more aware of what must be done. The commander's prerogatives are diminished, by the commander himself, in order to make the force more agile and more lethal.

Viewed from this perspective, it becomes clear that maneuver warfare actually demands more from the commander. It demands the self-confidence to trust juniors to think and act on their own initiative, within the framework of the mission and the commander's intent. It

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demands the ability to see what must be done and to articulate it clearly. It demands intuition, flexibility and decisiveness to dominate a much more fluid and unstructured battlefield. It demands originality to avoid patterned behavior. It demands physical courage to move well forward, to see the battle, to look in a subordinate's eyes, to take charge at the decisive moment and lead. It demands moral courage to create a command climate where juniors are free to be decision makers, and where they feel free to approach the commander with ideas, observations and recommendations. There will be mistakes, especially in the early stages of combat when everyone is learning. But the commander remains responsible.

The Reserve

Because maneuver warfare is so dynamic, the concept of a strong mobile reserve is a basic tenet. A standard rule of thumb is to hold one maneuver unit in three in reserve, but maneuver warfare encourages larger reserves. The reserve is often thought of as the commander's insurance against disaster, his primary means of retrieving a deteriorating battlefield situation. It is better to think of the reserve as the "Sunday punch." Offensively or defensively, commanders must be alert for openings to score a knockout, not just hold or take a piece of terrain. Particularly in uncertain, fluid situations, strong reserves enable a force to strike with decisive force at points of our choosing.

In *Inside the Soviet Army*, Viktor Suvorov describes just such a situation. At Kursk in 1943,

the 16th Guards Rifle Corps attacked with nine battalions. Eight made no gains at all, but one managed to make some slight forward progress. Its parent regiment and division rushed all available reserves to the area without consulting the corps commander, in accordance with standing orders.

Within half an hour, a kilometer-wide breach was made. Within 3 hours, 27 of the corps' 36 maneuver battalions were fighting in the breakthrough zone, widening the breach to seven kilometers. Every tank and 1,087 of the corps' 1,176 artillery pieces were dedicated to this attack. The front's exploitation force, an entire army, was rushed to the spot, followed within days by the reserve army of the Supreme Command. Ultimately, the German front collapsed completely, ending forever the possibility of a German strategic offensive in the east.¹⁰

At Kursk, Soviet reserves were employed with single-minded ruthlessness to exploit a minor, fleeting weakness. Adjacent units were stripped of all fire support, transport and supplies in order to strike a crushing blow. The speed and ferocity of the attack ensured that German commanders could not cope with a rapidly disintegrating front. Substantial risks were accepted in order to mass reserves strong enough to deliver the knockout blow. Kursk is one of the most impressive historical examples of the use of large mobile reserves to shatter the enemy's equilibrium—both physical and psychological.

Fire Support

Maneuver warfare is often criticized unfairly for its perceived denigration of firepower. While it is true that maneuver warfare theorists are critical of approaches to battle that emphasize the methodical application of overwhelming fires, firepower plays an essential role in maneuver warfare.¹¹ Firepower, and the technologies used to exploit it, are crucial components of modern warfare. Fundamentally, armies fight with fires.

The difference between maneuver and attrition thinking is that in maneuver warfare, fires serve to support the maneuver concept—not the other way around (as was the case in the Viet-

Soviet 152mm howitzers firing on German positions, circa 1943.



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nam conflict). Fascination with firepower and technology must not mask the essential truth that human factors—leadership, morale, cohesion, aggressiveness and the will to persevere and overcome the enemy—are decisive in war. Given reasonable numbers and adequate equipment, training, leadership and drive will tell every time. Concentration and timing of fires are more important than sheer mass, with victory going to the side that combines fires and maneuver most effectively to destroy the opponent's cohesion and will to fight. Rarely will an enemy consent to being physically torn to pieces. But it is possible to create the impression that he is about to be.

On 26 October 1917, a weak detachment led by Lieutenant Erwin Rommel ignored orders to withdraw, attacking and capturing the Matajur massif in the Italian Alps. The action earned Rommel the *Pour le Mérité*, Germany's highest battlefield decoration. Advancing boldly to create the impression of superior numbers, Rommel maneuvered across very steep terrain to attack consistently from unexpected directions.

Throughout the action, Rommel repeatedly concentrated the fires of his six heavy machine-guns against single targets, shattering them one by one and causing the collapse of entire formations as Rommel's small company of riflemen struck these demoralized units repeatedly from the flank and rear. Although he had infinitely inferior firepower, Rommel used the fire assets he did have in a concentrated, closely controlled way to strike heavy blows at enemy weak points. Caught in the bag were 150 Italian officers and over 9,000 troops. It was the beginning of the Rommel legend.¹²

Firepower, used with speed and concentration against weak points, can assist maneuver by providing decisive concentrations of fire extremely quickly. This underscores the fact that maneuver warfare does not mean excessive reliance on movement and deemphasis on fires. The two remain inseparable. Maneuver warfare views battle not as an attritional exchange of massed fire systems, but as the dynamic application of maneuver and fires to shatter the enemy's will—something very different.

Maneuver warfare actually demands more from the commander. It demands the self-confidence to trust juniors to think and act on their own initiative, within the framework of the mission and the commander's intent. . . . It demands physical courage to move well forward, to see the battle, to look in a subordinate's eyes, to take charge at the decisive moment and lead.

The Future of Maneuver

Many readers may be surprised to learn that AirLand Battle doctrine is heavily influenced by concepts that relate directly to maneuver warfare. Where the 1976 FM 100-5, *Operations*, clearly embraced attrition theory, emphasizing force ratios, the destruction of enemy forces and the defense, the 1982 version which introduced AirLand Battle doctrine emphasized the human dimension of war over technology, stressed the role of maneuver and the importance of the offensive, defined the nonlinear nature of the battlefield and called for speed, surprise and audacity as key fundamentals of the new doctrinal approach to warfighting. The 1986 100-5 was more restrained in its advocacy of maneuver

over fires but retained the essential thrust of the revolutionary 1982 document.¹³

The developing US Army Training and Doctrine Command (TRADOC) vision of "AirLand Operations" may go even further. The next version of FM 100-5 will reaffirm these principles and place further emphasis on seizing the initiative in offensive and defensive battles, mission-type orders as a technique of command, the focus of effort to define responsibility and the commander's intent as the basis of command and control. Smaller forces will make the battlefield more fluid and nonlinear than ever. Maneuver will be firmly embedded in doctrine as the most decisive ingredient, and the will of the opponent will remain the primary target.¹⁴

US Army doctrine in the past 15 years, beginning with the 1976 FM 100-5 and continuing through the 1982 and 1986 versions, has steadily evolved toward a maneuver warfare approach to battle and operations. Clearly, AirLand Battle doctrine and maneuver warfare are largely complementary, if not conceptually the same. By whatever name, these concepts deserve continued application and refinement. But talking the language of maneuver warfare is not enough. A smaller, less robust Army must learn to win without overpowering force. Other armies have learned to do so. Can ours? **MR**

NOTES

1. Samuel Huntington, "Playing to Win," *The National Interest* (Spring 1986).

2. *Ibid.*, 10-15.

3. William S. Lind, *Maneuver Warfare Handbook* (Boulder, CO: Westview Press, 1985). This remains the most concise and comprehensive primer on maneuver warfare and is the source used for this discussion of maneuver warfare fundamentals.

4. Carl von Clausewitz, *On War*, ed. and trans. Michael Howard and Peter Paret (Princeton: Princeton University Press, 1976), 90.

5. German victories in Poland and France; Israeli victories in the 1956, 1967 and 1973 Arab-Israeli wars; and the Gulf War demonstrate that quick, decisive knockouts can be achieved by avoiding force-on-force engagements and paralyzing the will of the enemy. The important point, however, is not battle avoidance but rather the application of force against vulnerabilities that, when struck, will cause the collapse of resistance.

6. Huba Wass de Czege, "Army Doctrinal Reform," in *The Defense Reform Debate*, ed. Asa Clark, et al. (Baltimore, MD: The Johns Hopkins University Press, 1984), 103.

7. Edward Luttwak, *Strategy: The Logic of War and Peace* (Cambridge, MA:

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8. This concept is based on Air Force Colonel John Boyd's "Patterns of Conflict" briefing, references to which exist throughout the body of maneuver warfare literature. See Lind, 5.

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11. "The importance of firepower in maneuver warfare cannot be overemphasized," Lind, 21.

12. Erwin Rommel, *Infanterie greift an* (Infantry Attacks), (Vienna, VA: Athena Press, 1979), 270-75.

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14. GEN John W. Foss, "Command," *Military Review* (May 1990) and "AirLand Battle-Future," *Army* (February 1991), and MG Stephen Silvas Jr., "AirLand Battle Future: The Tactical Battlefield," *Military Review* (February 1991).

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Airmechanization

THE NEXT GENERATION

Colonel Wallace P. Franz, Army of the United States, Retired

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THE POST-COLD WAR era presents a number of challenges for the US military. On one hand, the United States emerges as the only true superpower, having just demonstrated its military prowess in the war with Iraq; on the other, defense spending is being cut, and the Armed Forces are being reduced in size. As the remaining superpower, the United States will be expected to act as such. How can the United States meet its commitments throughout the world in the face of a drastic reduction in the defense budget?

The recent Gulf War provides some significant insights about modern warfare. It appears that the United States will be able to maintain its air and naval superiority for years to come due to the excellence of its professional personnel and high-tech weapon systems. The United States had little trouble defeating one of the better-armed Third World nations. The Gulf War did point out the difficulty in moving heavy mechanized forces thousands of miles to a distant theater of operations. The shortage of strategic airlift and sealift is likely to continue due to a lack of funding in these areas. There is a need to study the effects of modern technology on ground forces and how they can be made more responsive to the requirements of the future. Can smaller, lighter army units, through a combination of technology, speed and maneuver, produce the combat power required to defeat a heavy mechanized force anywhere in the world? They can, by organizing and equipping army combat aviation to function as a maneuver element with the ability to hold ground.

The US Army is expected to reduce its personnel by 25 percent in the next few years. Aided by modern technology, armies will move from labor-intensive to capital-intensive combat forces. . . . [It] will reduce its manpower requirements and increase its spending on land combat systems with enhanced mobility and firepower.

The nature of land warfare continues to change as nations mechanize their armies. Modern postindustrial societies find it difficult to maintain large armies due to fiscal restraints and demographic conditions. The US Army is expected to reduce its personnel by 25 percent in the next few years. Aided by modern technology, armies will move from labor-intensive to capital-intensive combat forces. Both the Navy and the Air Force have been capital-intensive services since their inception, relying on expensive weapon systems platforms to generate combat power. The Army will reduce its manpower requirements and increase its spending on land combat systems with enhanced mobility and firepower. AirLand Operations expects battles in the 21st century to be fought by fewer soldiers equipped with high-tech weaponry. The Army's concept of how land combat will be conducted in the future is stated in Army 21. This concept is quite explicit about what battlefields will be like:

"The regiments are continually moving and attacking. Their areas of operations are not

The term "airmechanization" signifies the intimate cooperation of armor and helicopters at tactical and lower operational levels, with the possibility of pure helicopter missions at a tactical level.

static. This gives the battlefield an amoeba-like appearance; that is, always changing. US Army forces orient on the enemy, not on terrain. Regiments have the capacity to quickly change the direction of movement and attack to fight in any direction . . . there will be a series of semi-autonomous battles . . . in order to defeat forces that are superior in numbers, maneuver, mobility and austerity are required. We must scan the battlefield to seek out enemy vulnerabilities, rapidly concentrate our forces, strike hard and fast, and then scatter before he can bring to bear his combat power."¹

The characteristics of a force that will be required to fight as indicated above are:

- Small, self-sufficient organizations.
- Highly mobile.
- Firepower-intensive.
- Less manpower reliant.
- Extremely agile—with a dispersion and a massing capability.
- Capable of fluid, continuous operations.
- Rapidly deployable.
- Makes extensive use of robotics.
- Electronic warfare (EW) incorporated in all combat forces.
- EW to destroy, disrupt, deceive.
- Built-in mobility, countermobility, survivability.
- Information processing for logistics.
- Less fuel consuming—more energy efficient.
- Invisible equipment (multiple or stand-off signatures).
- Redundancy in command and control.
- Reconstitution capability.
- Tailored family of vehicles.²

This dynamic type of combat places a high value on maneuver, stealth and disruption of the

enemy's ability to act and react. It depends on the synergism of weapons employment and aggressive mission-oriented tactics.³ The doctrine expounded in Army 21 cannot be implemented with the current family of fighting vehicles, although the AH-64 Apache meets many of the requirements. Under nuclear parity, the development of combat vehicles has tended to stagnate. The armored fighting vehicles of today are essentially what they were in World War I. There has been a far greater improvement in combat aircraft since World War I than there has been in ground combat vehicles such as the tank and armored car.

New and innovative approaches must be applied to the design of armored fighting vehicles using existing technology. Industry must meet this challenge and take the risks required and invest time and money to create a suitable land combat vehicle for the 21st century. One approach to this problem, as outlined below, deals with airmechanization and mobility. British Brigadier Richard E. Simpkin, the author of a number of works on armor warfare, has coined the term "airmechanized," and he states, "Use of helicopters in independent operations within the main mechanized battle—hence the term 'airmechanized'."⁴ He goes on to explain that the term "airmechanization" signifies the intimate cooperation of armor and helicopters at tactical and lower operational levels, with the possibility of pure helicopter missions at a tactical level.

Throughout the history of warfare, mobility has been a decisive element in achieving victory. Generally, armies have had five levels of mobility: the boot, the hoof, the wheel or track, the rotary-wing and the fixed-wing aircraft. The differences between these levels of mobility form the basis for maneuver superiority.

It was only after World War I that theorists discussed the use of wheels and tracks to mechanize large forces for operational maneuver. The German and Russian armies were the first to organize permanent mechanized units such as the division and the corps. These had mobility on order of magnitude greater than nonmecha-

The air-transportable ASU-57 can transport six soldiers in addition to its crew, thus giving airborne infantry some ground mobility and firepower.



Soviet General Vasily Petrov, using Cuban and Ethiopian units, conducted a successful airmechanized maneuver against the Somali in the Ogaden. He deployed a mixed helicopter and light armor force in the rear of the Somali army defending the Kara Marda Pass. This army was destroyed in three days. As an indication of the magnitude of this operation, 70 ASU-57 airborne self-propelled assault guns were lifted into the landing zone by Soviet helicopters.

nized forces. As a result of this mobility, mechanized forces have won significant victories over their less mobile foes. By the 1960s, most advanced armies had been mechanized; consequently, there was little difference in mobility between these armies. Now as the main maneuver force approaches the physical limit of cross-country mobility, it must get off the ground to achieve mobility superiority over mechanized armies.

The Soviet army accomplished this in the form of its airborne forces. The Soviets, with their emphasis on the operational art, have long considered airborne and air assault forces

as operational formations. As long ago as the 1930s, Marshal M. N. Tukhachevsky wrote about airborne mechanized forces employed to achieve operational objectives. The Soviet approach to increasing mobility has been to combine light mechanized forces with fixed-wing aircraft to form light armored airborne units. Later, rotary-wing aircraft were added to this formula. In his book *Red Armour*, Simpkin makes the following observation: "There is no question that the Soviet Army has moved much further than any other, even than the US Army in their 1986 structure, in the direction of air-mechanisation--the

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integration of rotary-wing and armoured forces."⁵

Soviet airborne forces are equipped with light armored vehicles that provide mobility and firepower well beyond that of Western airborne units. There is no Western equivalent to this family of Soviet airborne vehicles: BMD (9 tons), BMP (11.5 tons), PT-76 (14 tons), ASU-85 (14 tons) and the ZSU-23-4 (14 tons). The BMD airborne armored personnel carrier, for example, comes in a number of variants: the standard BMD with a 73mm low-pressure cannon, BMD with 30mm automatic cannon, a BMD unarmed prime mover supply vehicle, BMD with 82mm or 120mm mortar and a BMD recon vehicle.

The Soviet light mechanized airborne forces have been employed in stability operations throughout the Soviet Union and Afghanistan in recent years. The Soviets have continued to increase the number of airborne battalions equipped with the BMD. A Soviet airborne corps of three airborne divisions could contain 27 BMD-mounted battalions (some 99 BMDs), 150 close support self-propelled artillery pieces and about 750 air defense weapon systems. The presence of light armored vehicles raises the combat worth of a Soviet airborne division by an order of magnitude in giving it protected mobility after it has shed its fixed-wing mobility. The Soviets employed this airmobility in 1978. Russian General Vasily Petrov, using Cuban and Ethiopian units, conducted a successful airmechanized maneuver against the Somali in the Ogaden. He deployed a mixed helicopter and light armor force in the rear of the Somali

army defending the Kara Marda Pass. This army was destroyed in three days. As an indication of the magnitude of this operation, 70 ASU-57 airborne self-propelled assault guns were lifted into the landing zone by Soviet helicopters. The ASU-57 can transport six soldiers in addition to its crew, thus giving airmobile infantry some ground mobility and firepower.

Today, rotary-wing aircraft offer the opportunity to exploit the ground mobility both at the tactical and operational levels. Up to now, the helicopter has been used primarily as a ground support system at the tactical level. The early history of the tank is similar to that of the armed helicopter. The tank in World War I was employed at the tactical level as an infantry support weapon; it was not conceived as operating independently of the infantry, or at a speed much faster than that of the infantry. Recently, several European military theorists have advocated the employment of major helicopter formations in operational roles. This concept goes well beyond the tactical employment of attack helicopter battalions to the maneuver of major airmobile formations over distances in excess of 300 kilometers (km).

Simpkin would add 470 helicopters to an armored division. This unit would have a total strength of 22,500 men. His airmechanized concept is "the independent use of attack helicopters either tactically, as a stopgap block until the armor arrives; or operationally, to accelerate the development of critical points (Schwerpunktbildung) and enhance shock effect."⁶ Simpkin combines an air assault and armor force in his airmechanized division.

General Frido von Senger, a former commander of NATO's central region, takes the airmechanized concept still further. His division is much smaller than Simpkin's. It has an attack helicopter brigade, an air transport brigade and an airmobile brigade of four infantry battalions. Von Senger sees the primary role of this division as an army group or theater operational reserve. This force could be committed from a depth of 200 to 300 km after deployment of a forward C³ (command, control and

Elements of the French Rapid Reaction Force during a recent training exercise.



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communications) and logistic framework. Von Senger's division is an antiarmor force.

Von Senger states:

"The airmechanized force is to take no account of terrain obstacles; completely devastated areas and areas in which there is a highly dangerous amount of radioactivity must be of no significance. The vulnerability of airmechanized force on the move and in the assembly areas is to be reduced by dispersal and its own air defense units to such an extent that it will be considerably less vulnerable than large land-bound columns and conglomerations of vehicles on roads."⁷

An example of land- and road-bound mechanized forces experiencing serious difficulties in maneuvering on the modern battlefield is given in the excellent book, *Israel's Lebanon War*. The authors of this work point out that this June 1982 campaign in Lebanon was the most detailed, planned large operation ever conducted by the Israelis. The following account covers some of the problems that even an excellent

mechanized force encounters:

"The central drive up the Bekaa Valley was essentially one long, exhausting frontal attack, since the hilly terrain and mountain roads placed endless obstacles in the paths of the two flanking forces and prevented their unwieldy columns from fully expressing their power. Literally hundreds of the tanks sent into Lebanon never fired their guns, while the lead units bore the brunt of the fighting."⁸

Von Senger goes on to say that today's technology offers possibilities that obviously reach far beyond the present type of attack helicopter. He believes an aircraft with the following characteristics could be produced in the near future:

- Maximum speed about 300 km per hour.
- Cruising range about 600 meters.
- Payload about two tons; primarily weapon systems.
- Continuous hover capability.

We can trace several approaches to the problem of gaining mobility superiority over ground

Helicopters of the 2d Squadron, 8th Cavalry passing a burned-out Iraqi tank.



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mechanized forces. The Soviets have created a light mechanized force that can be transported by fixed- or rotary-wing aircraft into the rear of the enemy army. Simpkin would combine a large attack helicopter element with a heavy mechanized element in one division. Von Senger would organize his force around a powerful attack helicopter element with a very small airmobile infantry element. Still, in the above examples, a variety of vehicles are required to move, to support and to fight.

The next step in the evolutionary process of airmechanization is to incorporate the characteristics of the transporting vehicle with the fighting vehicle—the air vehicle with the land vehicle. The means of transport must become the means of combat. We combine the operational mobility of the helicopter with the tactical mobility of the tank. We now have the "flying tank" or air/land vehicle (A/LV) capable of holding ground. The Soviets have done this to some degree with their Hind series of helicopters, al-

though their dismounted infantry forces are still vulnerable to ground mechanized forces. Western airborne and airmobile forces have difficulty holding ground against armor; this is due to the combination of a lack of protected tactical mobility, and the light firepower of airtransported infantry. Airmechanized formations equipped with a suitable A/LV would have protected mobility and firepower and thus be able to hold ground while engaging enemy armor.

The Army is nearing the point where it can apply sophisticated aerospace technologies to ground combat vehicles. Composite armor, exhaust-reduction measures and sensor-jamming equipment are some of the new technologies that will make future combat vehicles lighter and yet more survivable. Equipped with a suitable vehicle, Army combat aviation employed as airmechanized maneuver units could conduct the type of campaigns envisioned by the Army in the 21st century. An example of one approach to the creation of a suitable vehicle is giv-

en below. Advanced technology should make it possible within the next few years to develop an air/land family of vehicles of about 11 tons with the following characteristics:

- Mobility: strategic, operational and tactical.
- Operational efficiency not significantly reduced by terrain, weather, climate or visibility.
- Provide protection against small arms fire and shell fragments through the use of Kevlar wraparound laminated armor.
- Energy efficient, extended range out to 1,000 km and speed of 500 kph.
- Relatively low cost to produce and maintain.
- Revolutionary rotary propulsion.
- Ground mobility without the use of rotors.

This A/LV combines the characteristics of the tank, infantry fighting vehicle and the attack helicopter, and becomes the main battle A/LV. This vehicle family would include combat support and combat service support versions. The basic A/LV configuration can be used as the scout A/LV.

We take a page from the transportation industry and its prepackaged container concept. To the basic configuration can be added the following compartment pods (COPOs):

- Antiarmor/antiair weapon system (use the same weapon in both roles, weapon and rearming capability are with the COPO).
- Heavy weapons using rocket-assisted kinetic energy (RAKE) projectiles and fuel/air munitions.
- Troop carrying/medical evacuation.
- Advanced radar and electronics.
- Engineer and countermobility.
- Supply: fuel, water, ammunition, food.
- Ground vehicle.

A function-based military support concept of replacement rather than repair and one-way logistics flow would be employed, using the basic Kevlar-covered COPO. Mission-dedicated, mass-produced, individually expendable platforms will support airmechanization.

The COPOs are armored and capable of hav-

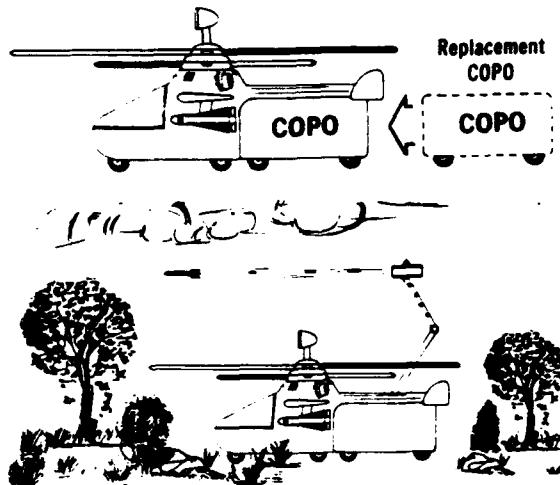


Figure 1. Air/land vehicle

The next step in the evolutionary process of airmechanization is to incorporate the characteristics of the transporting vehicle with the fighting vehicle. . . . We combine the operational mobility of the helicopter with the tactical mobility of the tank.

Airmechanized formations equipped with a suitable A/LV would have protected mobility and firepower and thus be able to hold ground while engaging enemy armor. . . . Composite armor, exhaust-reduction measures and sensor-jamming equipment are some of the new technologies that will make future combat vehicles lighter and yet more survivable.

ing additional composite armor added. Normally the basic A/LV would be more heavily protected than the COPO. The COPO can be attached or removed from the basic A/LV within a few seconds. Various COPO configurations could be prepacked and loaded into C-141 or other cargo aircraft for strategic deployment. The bulk of the A/LVs could fly directly to the theater of operations, using a fuel COPO or refueling at sea. COPOs could be incorporated into the ground defense system with minimal engineer support. Empty fuel or water COPOs

could be used for shelter or storage (remove self-sealing membrane from fuel COPO). An all-purpose ground vehicle would move COPOs on the ground. The ability of any A/LV to transport any type of COPO and the prepackaged nature of the equipment give flexible options for use of future technological advances. Obsolescent COPOs can be discarded as new systems come on line and are incorporated into new COPOs.

The airmechanized force outlined above is capable of conducting operations as envisioned in *Army 21*, the Army's projection of war in the 21st century, which advocates maneuver warfare employing a force with these characteristics:

- Capable of fluid, continuous operations.
- Highly mobile.
- Extremely agile dispersion and massing capability.
- Firepower intensive.
- Rapid strategic deployability.

Airmechanization will enable regiment-size forces to maneuver as never before. This type of unit can be dispersed over several hundred km and then concentrated in time and place to achieve surprise and overwhelming combat superiority. This concentration will take place on the battlefield only. Deception would be possible by massing in one direction and then dispersing only to concentrate on the real objective like a swarm of bees. The Joint Surveillance and Target Attack Radar System (JSTARS) is a battle-management air-to-ground equivalent of the Airborne Warning and Control System (AWACS). Its side-looking radar can pick out enemy ground targets up to 200 miles away, al-

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lowing it to direct air, artillery or missile strikes against them. Such a system could control the airmechanized units.

Maneuver-based concepts plus technology can combine to produce the capability to destroy armies before they are deployed for combat—the large-scale ambush conducted by a major airmechanized force to achieve operational objectives. There have not been many historical examples of entire armies being ambushed. The Romans suffered at least two major defeats due to ambushes; one in the Teutoburg Forest (by Arminius), the other at Lake Trasimene (by Hannibal). More recently, there was the ambush of Egypt's 25th Independent Tank Brigade by elements of Israel's 162d Armored Division in October 1973.

New and innovative approaches must be applied to vehicle design. While a new form of propulsion is required to provide a suitable A/LV, present technology can provide an interim A/LV that will assist the Army in achieving mobility superiority over its enemies with a light airmechanized force, a force that can be deployed anywhere in the world in a few days. **MR**

NOTES

1. US Department of the Army, *Army 21*, draft, 1984. 2
2. Ibid., 47 and 48.
3. Ibid., 30 and 31.
4. Brigadier Richard E. Simpkin, "An Airmechanized Force for the 90s," *Armor* (July-August 1981) 54.
5. Richard E. Simpkin, *Red Armour: An Examination of the Soviet Mobile Force Concept* (Oxford, England: Brassey's Defence Publishers, 1984), 177.

6. Simpkin, *Armor* 56.
7. F. M. von Senger, "New Operational Dimensions," lecture given at the Royal United Services Institute on 2 February 1983, 15.
8. Ze'ev Schiff and Ehud Yaari, *Israel's Lebanon War* (New York: Simon and Schuster, 1984), 172.
9. Von Senger, 12.

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Chemical Warfighting Considerations

Colonel John A. Mojecki, US Army, Retired

Chemical, biological and nuclear weapons are being developed by countries other than the Soviet Union, and ballistic missiles to deliver these deadly weapons are becoming readily available.¹

Donald Atwood, Deputy Secretary of Defense, February 1990

THE TRUTH in the deputy secretary of defense's statement to the Senate Appropriations Committee still must be a major concern of our senior leadership and our field commanders, even though chemicals were not employed by Iraq during Operation *Desert Storm*. The successful use of chemical weapons by Saddam Hussein against Iran in the Iran-Iraq War led to a concerted effort, both defensively and offensively, to preclude or mitigate such use against coalition forces.²

Why Hussein did not use chemical weapons against coalition forces is still not known with certainty, and may never be known. The speed and lethality of *Desert Storm* and the disruption of Iraq's command and control (C²) infrastructure could have been the main reasons. We know from statements by General H. Norman Schwarzkopf and others that concern for the Iraqi chemical threat led to a concentration of fires on Hussein's chemical and biological production facilities and his air, missile and artillery delivery systems. The bold, rapid and masterful execution of the campaign by coalition forces severely reduced and probably eliminated any chemical warfare advantage Iraq may have had.

Furthermore, the United States and most coalition forces were better equipped and trained to survive and operate under chemical warfare conditions than during any prior conflict. This

Concern for the Iraqi chemical threat led to a concentration of fires on Hussein's chemical and biological production facilities and his air, missile and artillery delivery systems. The bold, rapid and masterful execution of the campaign . . . severely reduced and probably eliminated any chemical warfare advantage Iraq may have had.

factor further added to the deterrence equation. Historically, the use of chemical agents has shown that their use was closely tied to the opponents' inability to adequately protect themselves, as well as an inability to respond in kind. US forces were well equipped—from protective clothing and masks, through detection and warning devices, to collective protection overpressure systems in the M1A1 tank. The readiness of our soldiers and leaders to operate under chemical conditions and the professional Chemical Corps personnel assigned throughout the force structure, as well as the numerous Active and Reserve Component chemical units in theater, were just as important as the equipment.

How did we achieve this highly effective level of chemical defense preparedness? One of the prime contributors to our preparedness has been the Force Development Test and Experimentation (FDTE) field test series CANE (Combined Arms in a Nuclear/Chemical Environment). CANE examines and measures the interactions of combat, combat support and combat service support units using force-on-force, high-resolution field tests.

US forces were well equipped—from protective clothing and masks, through detection and warning devices, to collective protection overpressure systems in the M1A1 tank. The readiness of our soldiers and leaders to operate under chemical conditions . . . [was] just as important as the equipment.

Performance differences between operations under conventional and nuclear/chemical battlefield conditions are being quantified. Extended operational scenarios ranging from 72 to 96 hours have been used, and task performance data collected by Army subject matter experts from Army Training and Evaluation Programs. These data were in addition to the instrumented, real-time casualty assessment data.

The CANE test series uses a building block approach to obtain the data that have led to our improved chemical warfighting capabilities. So far, three major tests have been conducted. CANE I evaluated mounted and dismounted operations of a mechanized infantry platoon.³ CANE IIA examined tank-heavy company team operations.⁴ CANE IIB evaluated combat operations at the battalion task force level.⁵ Each test included the combat support and combat service support slice appropriate to the test unit's task organization. A test of light forces, which had been scheduled for early 1991, was postponed until 1992 because of Operation *Desert Shield*. Other tests in the planning stages include air defense and aviation battlefield functional mission areas.

As indicated by the references, the detailed results of the above tests have been published in summary evaluation reports and lessons learned video tapes. It is not intended to repeat those results here, but rather to highlight the more important ones and describe what is being done to implement solutions to the CANE-identified needs. As we move toward adapting AirLand Operations concepts to AirLand Battle doctrine, it is imperative that we do so in light of CANE and other test results. Major General Stephen

Silvasy Jr., former deputy chief of staff for Concepts, Doctrine and Developments, Headquarters, US Army Training and Doctrine Command (TRADOC), in a recent Military Review article on AirLand Battle stated, ". . . concepts must drive any structure changes and on-the-ground testing will be necessary to demonstrate that improvements are actually achieved."⁶

CANE I test results highlighted several operational needs of the mounted and dismounted infantry platoon. Decreased visibility and recognition problems increased fratricide significantly among dismounted infantrymen performing mission tasks under simulated nuclear/chemical warfare conditions (several incidents of fratricide occurred in *Desert Storm*, one involving dismounted infantrymen). Attacks took up to twice as long to conduct; leaders became casualties quicker, and the time to realize they had become casualties and to replace them took longer. Soldier dehydration was a serious problem even though the weather conditions were relatively mild during the test period.

CANE IIA revealed problems in fighting the tank-heavy company team. Fighting "buttoned up" and firing fewer rounds, the company sustained more losses and destroyed fewer of the opposing forces (OPFOR) vehicles during attacks of OPFOR positions. C² became more difficult, especially in synchronization of units and in maneuver and agility. Radio messages were longer, and more requests for clarification were recorded. Another key result was that tasks that were routine and practiced showed little or no performance degradation.

The tank-heavy battalion task force was the subject of CANE IIB. As in CANE IIA, the kill/loss ratios were unfavorable to the task force. The eyes and ears of the commander, the scouts, were particularly affected. The scouts were unable to perform their key tasks because of visibility and hearing restrictions and, on several occasions, became decisively engaged with the OPFOR. Combat support tasks such as those performed by the indirect-fire elements, engineers and Stinger teams took longer to perform or were significantly less effective under simulated nuclear/chemi-

cal conditions. Combat service support tasks in maintenance, supply, transportation and casualty treatment and evacuation also took longer or were poorly performed.

In all CANE tests, the most pervasive problems identified were leadership and C². Leaders at all levels tended to do more, apparently having less confidence in their subordinates and staffs. Delegation of tasks decreased and led to leaders becoming more exhausted and irritable. Synchronization of units became more difficult, and the agility advantage inherent in the design of our newer combat vehicles was frequently not exploited. Somewhat complex operations plans could not be executed as effectively as they had been in the conventional battle phase of the test.

The CANE test program identified a number of operational needs that required solution sets to improve our chemical warfighting capability. These are being addressed through an implementation program set out in TRADOC Regulation 71-18, *Combined Arms in a Nuclear/Chemical Environment (CANE) Implementation Program*. This program provides a systematic and comprehensive procedure for ensuring that NBC (nuclear, biological and chemical) deficiencies in US Army doctrine, training, organization, materiel and leader development are identified, have solutions developed and corrective actions taken and documented.⁷

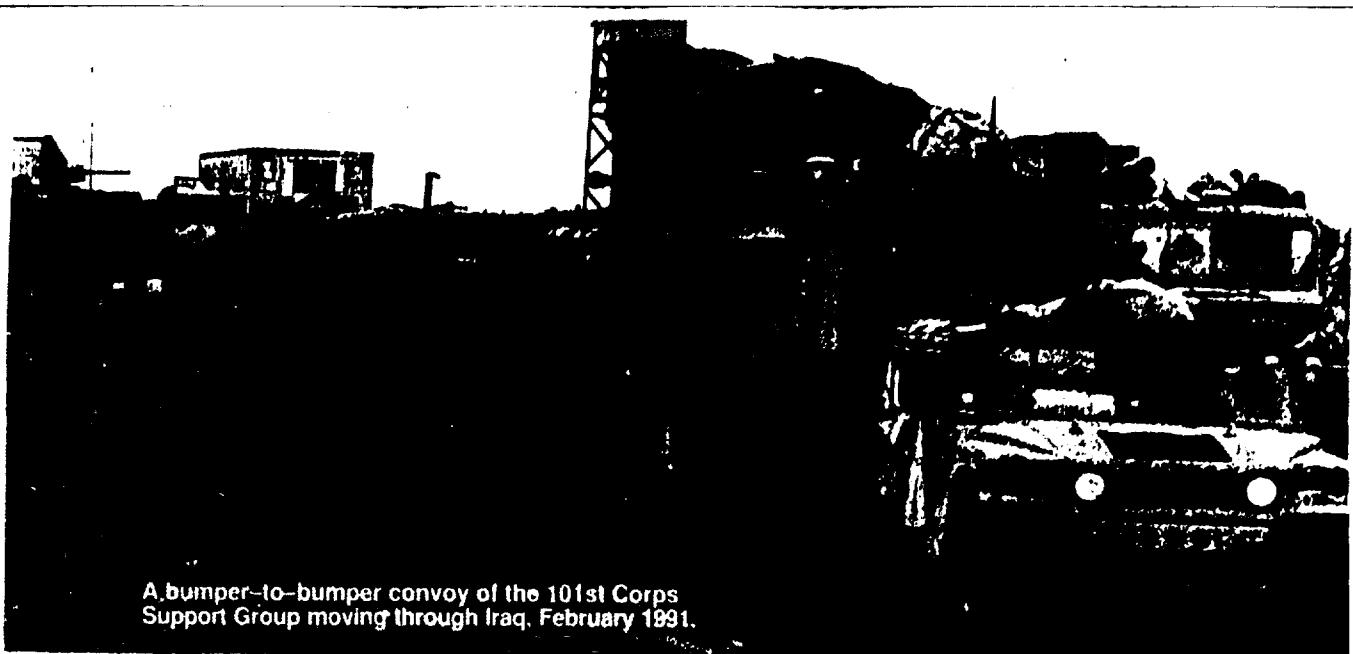
The commandant of the US Army Chemical School, Fort McClellan, Alabama, is the focal point for this implementation program. He is responsible for scheduling problem solution and corrective action approval sessions with the proponents of the affected battlefield functional mission areas. The program uses data analysis teams, evaluation panels and a council of colonels, all of which include proponent representation. The strength of the program lies in the fact that operational experience and judgments are blended with the mathematical test results. The commander of TRADOC reviews the status of the corrective actions with his integrating center commanders and commandants on an annual basis. So far, over 75 corrective actions have been addressed through the program, and in-



Decreased visibility and recognition problems increased fratricide significantly. . . . Attacks took up to twice as long to conduct; leaders became casualties quicker, and the time to realize they had become casualties and to replace them took longer. Soldier dehydration was a serious problem even though the weather conditions were relatively mild during the test period.

clude solutions in the five TRADOC domains, as well as testing, modeling and policy.

As shown, considerable progress has been made in improving our chemical warfighting capabilities. The operational needs identified by CANE were based on current organization, doctrine, training and materiel systems. That we



A bumper-to-bumper convoy of the 101st Corps Support Group moving through Iraq, February 1991.

We must ensure that our own combat, combat support and combat service support units remain dispersed to decrease their vulnerability and increase their survivability. Also, our troops must be trained and equipped to both survive and operate effectively on an NBC battlefield.

were mentally and physically prepared for chemical warfare in *Desert Storm* is an endorsement of CANE and other NBC defense reconstitution programs. While maintaining and improving our current high state of chemical warfare readiness, we must actively pursue similar solutions to the challenges of the concepts set forth in AirLand Operations.⁸ General John W. Foss, former commander of TRADOC, phrased the challenge this way, "The Army must be mobile: strategically, operationally and tactically. Flexibility and agility must be force characteristics as well as the mental characteristics of the leader."⁹ Some of the problem areas identified in CANE centered on maneuverability and agility, and in leadership—both in C² and leader flexibility.

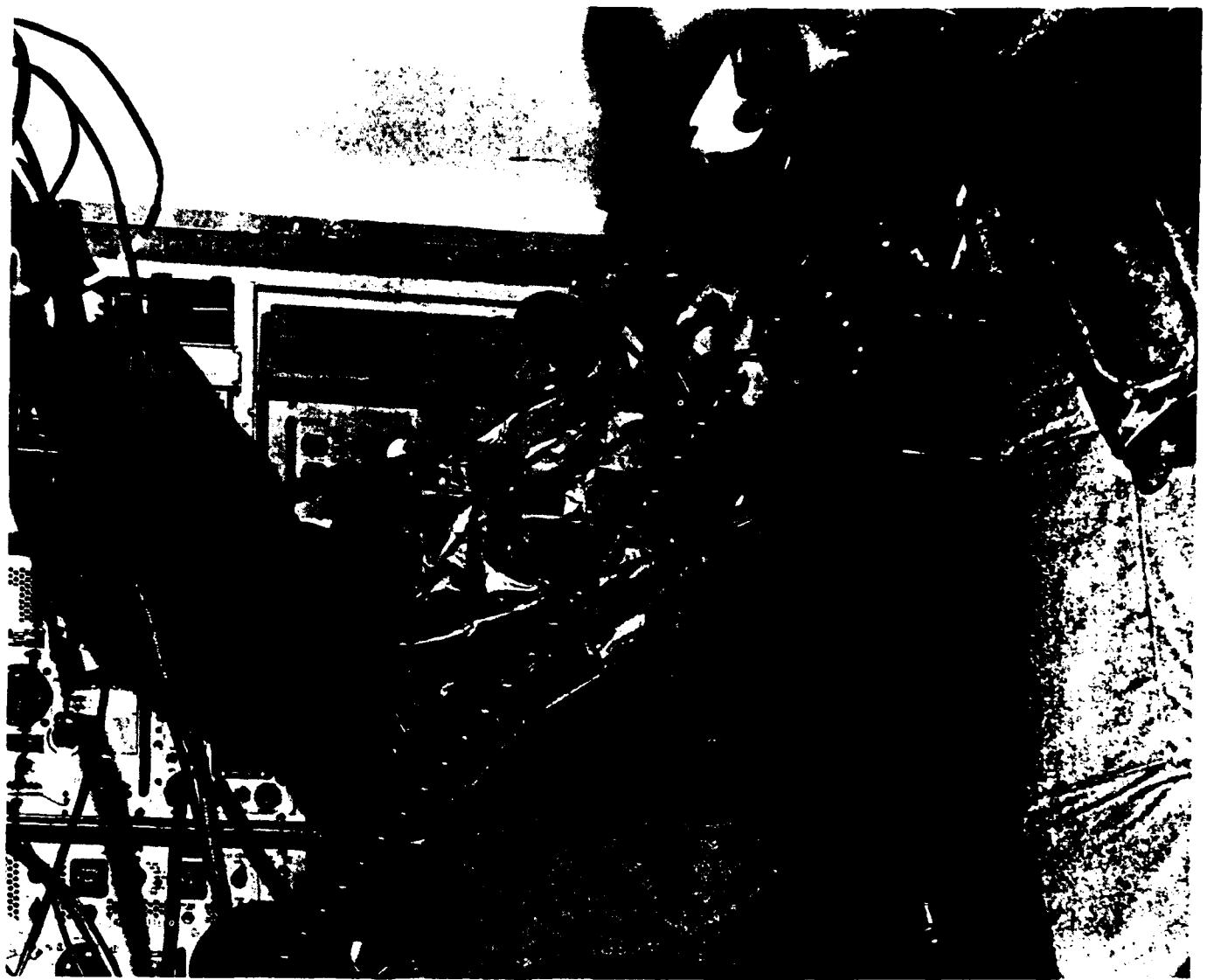
Operations *Urgent Fury*, *Just Cause*, *Desert Shield* and *Desert Storm*, and the decreasing threat in Europe indicate that any future force projections will be to immature theaters. It also is likely that the geography will vary widely. These factors plus political constraints will impact on the geometry of the battlefield. However, AirLand Operations envisions that a future battlefield will include breadth and depth and that the focus will be on the enemy and not on terrain. Whether the battlefield is linear or non-linear will be influenced by the traditional elements of mission, enemy, terrain, troops, and time available (METT-T). Lower echelons may

fight linear battles to create the conditions for division and corps commanders to shape the battlefield for subsequent operational maneuver.

Reduced defense spending and proposed treaty terms most likely will result in fewer units on the battlefield. As an offset to a smaller force size, it is anticipated that increased sensor capabilities will provide greater knowledge of the enemy's location, strength and movement. Also, our capabilities to engage enemy forces at greater ranges with extremely accurate and lethal fires will present new opportunities. *Desert Storm* has shown that this day may already be here. Improvements in stealth technology and real time battlefield damage assessment will further improve this current capability.

AirLand Operations considers four stages: detection/preparation, establishing the conditions for decisive operations, decisive operations and force reconstitution. What dimensions does the threat of NBC warfare add to these considerations?

Detection/Preparation. Reconnaissance, surveillance and targeting of NBC delivery systems are an essential requirement for AirLand Operations. Our ability to maneuver, maintain agility, synchronize our units and mass at the proper place and time will require the ability to locate and target the enemy's capability to employ such weapon systems effectively against



Combat support tasks such as those performed by the indirect-fire elements, engineers and Stinger teams took longer to perform or were significantly less effective under simulated nuclear/chemical conditions. Combat service support tasks in maintenance, supply, transportation and casualty treatment and evacuation also took longer or were poorly performed.

us. Also, we must be able to detect and identify those areas that become contaminated in order to retain our freedom of maneuver. On an extended battlefield with widely dispersed units, this adds emphasis to the development and fielding of remote detection and identification systems employable by satellite, air or unmanned aerial vehicles, as well as ground-based systems. Data from these systems must be provided in real time to the field commanders and their staffs.

Establishing the Conditions. Creating the conditions for decisive operations on an NBC battlefield will require the reduction or elimination of the enemy's NBC delivery systems, his C² and logistic sustainment of such systems. Accu-

rate, responsive, lethal and long-range delivery systems will be required to support offensive operations. Equally long-range and accurate sensors and surveillance systems will be needed to assess the effectiveness of our attacks. In conjunction with our attack of enemy systems, we must ensure that our own combat, combat support and combat service support units remain dispersed to decrease their vulnerability and increase their survivability. Also, our troops must be trained and equipped to both survive and operate effectively on an NBC battlefield.

Decisive Operations. The traditional seizure of the high ground is less significant to Air-Land Operations. Our forces will orient on the

Reconnaissance, surveillance and targeting of NBC delivery systems are an essential requirement for AirLand Operations. Our ability to maneuver, maintain agility, synchronize our units and mass at the proper place and time will require the ability to locate and target the enemy's capability to employ such weapon systems effectively against us.

enemy, not the terrain. Achieving decisive results will require good information on enemy locations and dispositions, and our ability to mass fires and forces quickly and effectively. Once these operations are set in motion, we cannot afford to have them distracted or delayed. On an NBC battlefield, this will require individual and collective protective systems that reduce degradation of our forces and their weapon systems, and an inherent ability to avoid contaminated areas by rapid reconnaissance and identification of clean routes of advance.

Force Reconstitution. Reconstitution on an NBC battlefield to perform necessary reorganization, personnel, supply and maintenance tasks will require NBC reconnaissance and surveillance systems to locate clean areas, which are then organized so as to avoid the creation of lucrative targets. The use of smoke to obscure these areas and to provide deception as to target

location also will be necessary. Appropriate areas for the organization and use of efficient, less logistics-dependent decontamination systems must also be available.

The above stages of AirLand Operations must be addressed in light of the doctrine, training, organization, materiel requirements and leader development programs necessary to support the concept. Widely dispersed units on an extended battlefield will have to be more self-sufficient in terms of support and leader decisions. As Silvasy said, ". . . risk taking by thoughtful professionals will be the rule."¹⁰ The key to this statement obviously is "thoughtful professionals." Leaders at the lower levels will have a heavier burden to know, with confidence, areas outside their basic proponency, one primary area being the NBC defense area. In the coming period of force reductions, it is likely that the organic chemical unit force structure also will be proportionately reduced. Thus, leaders must have the materiel resources to perform basic NBC defense tasks within their units. To assist in the organization, training and employment of these resources, leaders must have well-trained, highly motivated professional chemical specialists. Senior leadership must preserve the current Chemical Corps infrastructure in our nonchemical units. Our combat, combat support and combat service support unit commanders will be even more dependent upon this level of support on the battlefield envisioned by AirLand Operations. **MR**

NOTES

1. Testimony before Senate Appropriations Committee, February 1990.
2. Lee Waters, "Chemical Weapons in the Iran/Iraq War," *Military Review* (October 1990):56-63.
3. *Combined Arms in a Nuclear/Chemical Environment*, Summary Evaluation Report, Phase I, US Army Chemical School, March 1986. (DTIC ADB101686).
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5. *Combined Arms in a Nuclear/Chemical Environment*, Summary Evaluation Report, Phase IIB, US Army Chemical School, June 1989. Confidential. (DTIC C045814).
6. MG Stephen Silvasy Jr., "AirLand Battle Future: The Tactical Battlefield," *Military Review* (February 1991):11.
7. US Department of the Army TRADOC Regulation 71-18, *Combined Arms in a Nuclear/Chemical Environment (CANE) Implementation Program*, Headquarters, US Army Training and Doctrine Command, Fort Monroe, Virginia, 25 May 1990.
8. US Department of the Army TRADOC Pamphlet 525-5, *AirLand Operations: Final Draft*, Headquarters, US Army Training and Doctrine Command, Fort Monroe, Virginia, 28 June 1991.
9. GEN John W. Foss, "The Challenge: Superb Quality While Using Fewer Resources," *ARMY 1990-1991, Green Book* (October 1990):60.
10. Silvasy, 8.

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INITIATING THE BRIGADE CUTTING EDGE

• Lieutenant Colonel Thomas R. Rozman, US Army

The deployment phase of Operation Desert Shield took nearly six months, allowing force planners time to package and adjust the mix of forces needed in the theater. The author cites the real probability that most contingency operations will not afford such a deliberate buildup phase. He sees the need for preparing force packages in advance of probable contingency requirements, built on a standard brigade base and able to accept a flexible mix of units.

THE NATIONAL Command Authority's instructions were taking shape on the secure airhead. The brigade's ground security, an airborne infantry battalion, was deployed. The remainder of the brigade was rolling off aircraft after aircraft. Its batteries of long- and medium-range artillery gave it an instant ability to kill and delay armored formations at considerable range. Its target acquisition system's ability to acquire these massed targets was uncannily accurate. Ultimately, the brigade's fire units would equal four battalions mounted on highly mobile light chassis vehicles, all wheeled.

Also entering the airhead were armored gun systems and line-of-sight missile platoons that would eventually equate to a battalion of heavy-caliber, direct fire weapons, 105mm cannons and missiles. This unit would enhance the security battalion's ability to deal with any enemy forces that survived the the artillery pounding as they approached from the frontier.

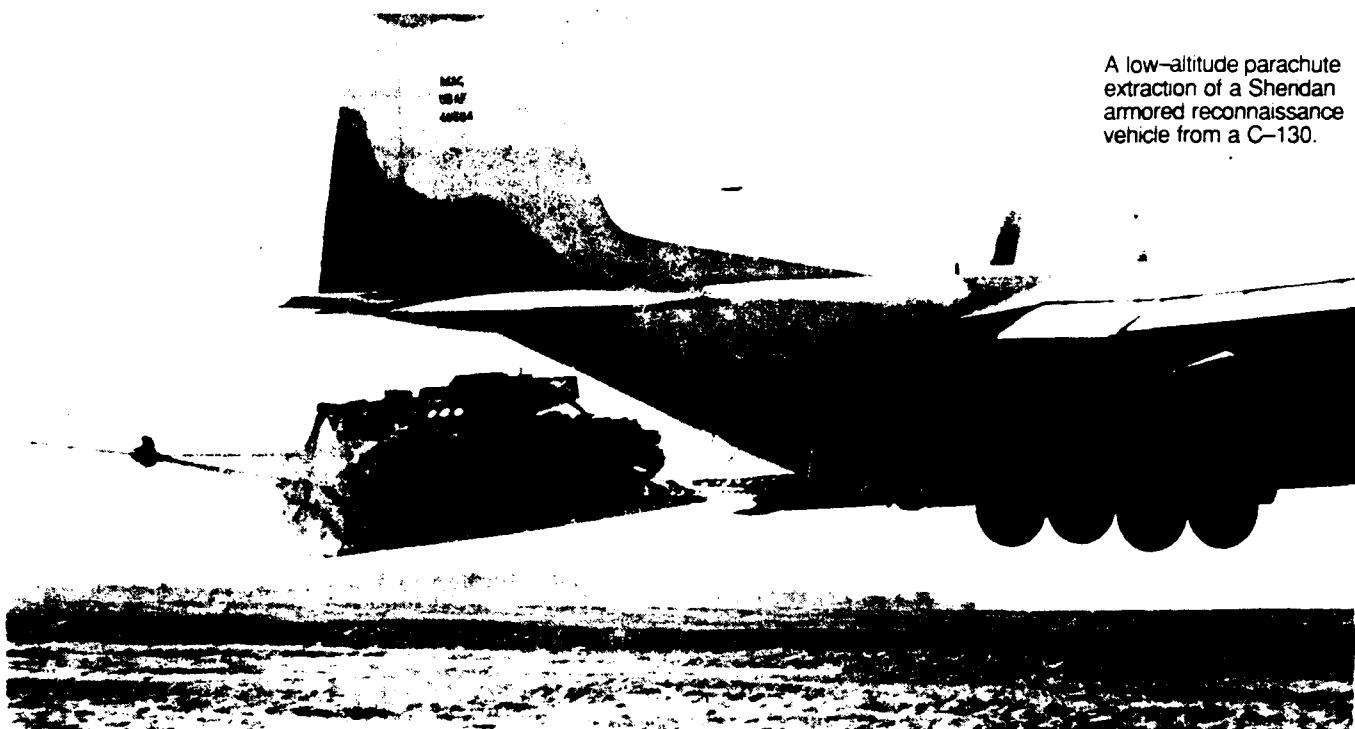
The brigade's mission was to seize the airhead, a civilian airport, in a country that had appealed to the United Nations for security assistance. The rapidly deteriorating international situation pitted this country against a much stronger neighbor possessing a substantial armored force

A mature, all-branch, brigade-level C² system in a modern sense did not emerge until the World War II armored division combat commands. . . . The headquarters could find itself controlling mixes of up to five tank and armored infantry battalions at one point in a battle and, later on, depending on the mission, perhaps only two, or even none at all.

of several brigades. Equally noteworthy, the terrain on the frontier supported use of these forces.

Because US interests in the region were significant and stability of the existing international border was important to those interests, a sizable part of the UN force being provided was American. The challenge to US planners and commanders was to project a sufficiently powerful and survivable force into a region where no forward presence existed.

This is obviously not a new problem. The Army has been wrestling with solutions for several years, and is now applying lessons learned from our most recent past deployments, such as Panama and Saudi Arabia, using new technolo-



A low-altitude parachute extraction of a Shendan armored reconnaissance vehicle from a C-130.

Habitual relationships formed between battalions and brigades. In practice, these relationships tended to minimize in peacetime training the employment of the brigade headquarters as an effective nuclear all-arms C² node. Importantly, the "all arms" tended to focus primarily on the ground maneuver elements.

gy and new organizational and tactical techniques. The result of this effort will hopefully be a force similar to the brigade establishing the air-head in the preceding scenario.

This notional, but highly possible contingency suggests the purpose of this article—that is, to examine a ground force concept for initial entry force projection. The concept design addresses some of the challenges of the post-Cold War contingency operations (CONOPS) environment. Among other things, this environment on a smaller Army base requires the packaging of professionally and technologically superior forces to oppose possible threat forces. The concept builds on a brigade-size element capable of commanding and controlling a wide range of units and assumes that the mix of units may change dramatically over the time frame of the operation. The concept proposed here recognizes that the initial deployment brigades may look very different a day or two after deployment or at the end of the operation.

A Truly Nuclear Brigade

The idea of nuclear (not a "nuclear weapons capable" unit but one that is structured on a bare-bones "nucleus" and tailored to meet the

mission requirements) brigade headquarters that can command and control (C²) varied mixes of shifting subordinate units is not new to the US Army.¹ In a fashion, such tactical arrangements have been employed as early as the Revolutionary War.² In more modern times, the tendency has been to employ this concept in a branch-pure sense, such as artillery brigades or groups, engineer brigades or groups, with the number of battalions under the group's command adjusting up and down as the mission required.³

Even the maneuver arms have tended toward a similar concept of branch pure structures with varying numbers of battalions (two, three or four), again depending on mission. A mature, all-branch, brigade-level C² system in a modern sense did not emerge until the World War II armored division combat commands. All other types of divisions were organized after 1942 with regiments (roughly equivalent to a brigade) of three battalions of infantry or cavalry. The headquarters could find itself controlling mixes of up to five tank and armored infantry battalions at one point in a battle and, later on, depending on the mission, perhaps only two, or even none at all.⁴

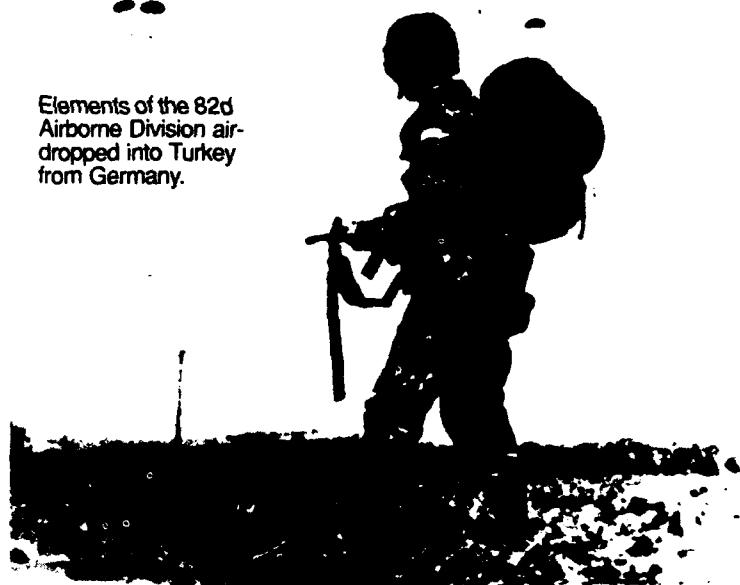
The approach was revisited doctrinally in the early 1960s when the Army reorganized from the Pentomic System to the Reorganization Objective Army Divisions (ROAD) System. Under this system, three nuclear brigade headquarters operating under the division were generally assigned three maneuver battalions. These battalions might be infantry, mechanized infantry or armor, as the mission required. Even in the infantry division of the early ROAD period (where the majority of the division's battalions were infantry with sufficient motor transport to move no more than one infantry battalion at a time), it was possible to form a hybrid (mounted) brigade of infantry, mechanized infantry and armor using the division's two mounted battalions.⁵

However, increasingly habitual relationships formed between battalions and brigades. In practice, these relationships tended to minimize in peacetime training the employment of the brigade headquarters as an effective nuclear all-arms C² node. Importantly, the "all arms" tended to focus primarily on the ground maneuver elements. This was a natural result of the predilection of the division artillery (DIVARTY) commander and division support (DISCOM) commander (in effect, two brigade headquarters) to hold the supporting artillery battalion and combat service support, engineers and other supporting arms under their control most of the time. There have been different approaches to this through the years, but even though ROAD doctrine indicated that these assets would support the brigades, task organization of combat arms, combat support and combat service support was not extensively or habitually practiced during training events.

In more recent years, strides have been made in improving exposure of brigades to effective all-arms training and operations. However, the only units that "lived" in such an environment were the few separate brigades and armored cavalry regiments.⁶

Current world conditions point to an environment where US forward positioning is increasingly being reduced to a presence, following a strategy that places fewer forces in various parts

Elements of the 82d Airborne Division air-dropped into Turkey from Germany.



The more typical situation will be a well-armed and possibly battle-experienced Third World power. These states will often be in areas where we do not enjoy forward presence or bases. Such situations may demand forced entry into a theater. Over such a wide range of possibilities and requirements that beg for different types of battalions.

of the world and relies more on force projection from CONUS (Continental United States). Such a policy may demand another organizational solution. Potential adversaries in contingency situations may require US forces to fight

During peacetime, these brigades would exercise on field maneuvers with subordinate units from different commands. The units under command would reflect the possible force mixes the brigades would employ for certain contingencies. These brigades would refine command, control and support capabilities, using emerging simulation capabilities.

on battlefields that cover the entire conflict continuum. Enemy forces may range from extensive, well-supplied air and ground forces to not much better than paramilitary elements. The more typical situation will be a well-armed and possibly battle-experienced Third World power. These states will often be in areas where we do not enjoy forward presence or bases. Such situations may demand forced entry into a theater. Over such a wide range of possibilities and requirements that beg for different types of battalions, a flexible brigade C² level may be a key to success.

This does not mean that certain types of standard maneuver brigades would not be retained as part of our doctrine. The ability to project large numbers of standardized maneuver brigades into a battle theater will remain a requirement. One reason for this is inherent human limitations in mastering a more complex and chameleon-like brigade. Also, we must consider the difficulties of logistic support required by the formations being suggested.

It does suggest that we may want to augment current structures with a nuclear brigade concept. It calls for a unit structure with a leader and brigade headquarters element trained and able to train subordinate units to execute forced entry

missions. This can realistically be implemented by a C² element that is more nuclear and flexible in design.

For discussion purposes, let us name this brigade a "contingency operations initial deployment brigade," or in short form, a contingency deployment brigade (CONDEB). This concept, for considerations mentioned, should probably coexist with the more traditional brigade C² system as an evolution of nuclear brigade C² thinking. However, in practice, only a relatively small number of brigade headquarters may be required to employ this form of task organization.

In a number of ways, emerging ideas being developed in the Army's future warfighting concept, AirLand Operations, and a supporting concept, nonlinear battle, are addressing some of these issues. The CONDEB concept offers a brigade headquarters structure that can fulfill C² requirements over a force mix that may be very different from traditional concepts, one that is dynamic in its composition.

A CONDEB Brigade

The introductory scenario described a situation where the initial ground force brigade established security with no more than an airborne battalion. It was then quickly filled with long-, medium- and close-range fire units. The brigade, in a rapidly developing situation, was organized to seize an immediate base. It then punished and significantly weakened approaching forces at long range. This scenario illustrates the appropriateness of this CONDEB structure. However, the situation did not proceed to later developments or stages of operations. These developments may have involved the need for significant additional reinforcement by subsequently deployed ground maneuver elements. These additional elements may have eventually caused a reconfiguration of the brigade or the addition of other, more standard brigades to the operation. Such actions are easily executed within the nuclear, building block concept.

In a different scenario, it is just as possible that the initial CONDEB might have consisted of a significant countermobility (engineer), elec-



Air-transportable armor, artillery and helicopter assets of the 82d Airborne Division on a live-fire exercise.

The initial ground force brigade established security with no more than an airborne battalion. It was then quickly filled with long-, medium- and close-range fire units [which] punished and significantly weakened approaching forces at long range. . . . In a different scenario, it is just as possible that the initial CONDEB might have consisted of a significant countermobility (engineer), electronic warfare or air defense element, depending on threat capabilities.

tronic warfare or air defense element, depending on threat capabilities. To a degree, we have been leaning in this direction. Operation *Just Cause* in Panama may have illustrated such a need. As a doctrinal issue, we do not regularly practice brigade C² elements in such "mixed bag" force packages. Nor do we cause brigades to have to adapt to rapid changes in the mix of these forces. As noted earlier, this is due primarily to C² limitations in effectively adapting to rapidly changing force mixes and the logistics challenges inherent to such changes.

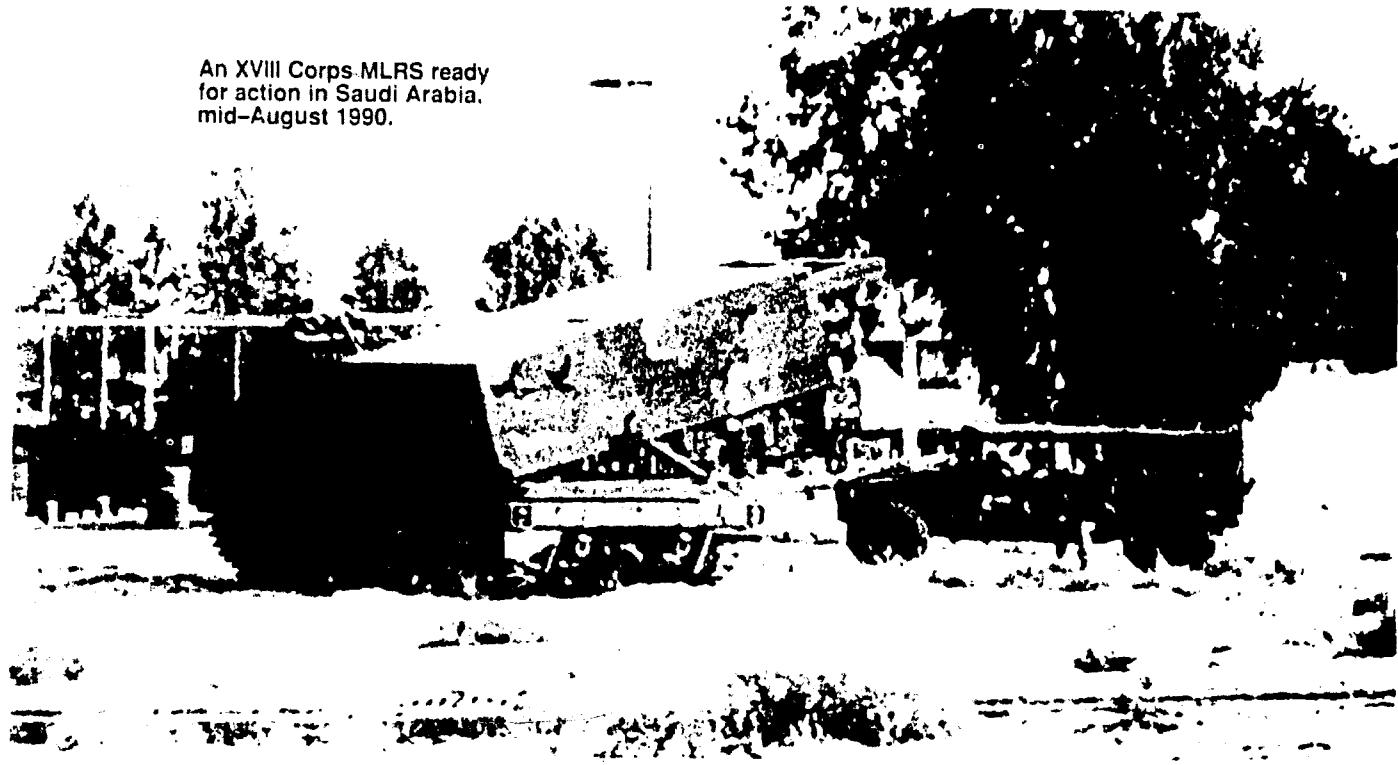
Implementing this concept may mean stretching the envelope of human flexibility and adaptability. Also, limitations in peacetime training systems and peacetime and wartime logistic support may further inhibit such a doctrinal system. In order to accommodate these limitations and still realize the benefits of this concept, it may be necessary that most brigades will have a set of heavy force or light force battalions in garrison that are their normal peacetime set. These brigades could train for appropriate contingencies, possibly on field exercises with the more "original" force mix of battalions. For cer-

tain other missions, they will exercise on simulations with a flexible mix of battalions called for by particular contingency requirements.

Another option may be to maintain a number of active headquarters, brigade in this case, specifically oriented on certain missions. These brigades would have no organic battalions. During peacetime, these brigades would exercise on field maneuvers with subordinate units from different commands. The units under command would reflect the possible force mixes the brigades would employ for certain contingencies. These brigades would refine command, control and support capabilities, using emerging simulation capabilities.

Such brigades would be specifically designed to accept a range of units that "weighted" the particular brigade on certain battlefield operating systems (BOS). The basis for the weighting would be the CONOPS missions planned, such as maneuver, fires and countermobility. The brigade's C² and support assets could be designed to be rapidly reconfigured with new battalions to weight toward another BOS as the operation matured.

An XVIII Corps MLRS ready for action in Saudi Arabia, mid-August 1990.



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In the case of the opening scenario, a weighting on indirect fires was apparent. Such a fires-oriented initial entry force is a concept worth further exploration in its own right. However, it serves as a counterpoint begging for reexamination of our current tendency to initially weight or orient a force package design around a maneuver-heavy base. In this situation, the task organization emphasized a small, compact force, a battalion, to seize and secure the airhead. Subsequent brigade units were units with significant long-, medium- and short-range fire capabilities designed to severely punish the threat's heavy forces at a distance. Augmented by air support and superior target acquisition capabilities, this force is designed to have sufficient combat power to buy time. It will severely hurt the approaching enemy force. It may be an ideal force for the purpose of securing a base for the subsequent entry of a more substantial force package.

If this brigade were a nuclear formation designed to accomplish a specific mission, it could be withdrawn as parent brigades of its battalions and separate companies arrived. These subordinate units would revert to their organic brigades.

Another possibility, as indicated earlier, would be to reconfigure the brigade with a greater maneuver orientation.

The feasibility of this concept is largely dependent on the organic support capability such brigades would have. How effective would the brigade be at solving the support issues? In terms of support organization, the short answer might be a normal brigade configuration in garrison of a headquarters without troops and a support task force. The support task force could be organized from existing nonorganic units (Active or Reserve) and drilled in the brigade's primary mission(s) periodically. A more desirable possibility would be to provide a support battalion headquarters with two possible options: a robust organic support battalion along the lines of a current forward support battalion (FSB) but with capabilities to support all manner of units, light and heavy; or, a battalion with minimal permanent structure that could be quickly filled for a mission from Active and Reserve assets based on the CONOPS plan activated. Obviously, the robust organic organization is the more desirable. However, fiscal considerations may drive the

end result more toward the minimal battalion arrangement, one that can be made to work if sufficient training with units is made possible.

All of this suggests a doctrinal brigade-level C² capability that is similar to the way forces were packaged for Panama. The methodology difference is that from the outset, the Army will maintain organizations designed to fight as brigades with unique organizations for every mission. As noted earlier, this sort of organization would probably work best in the mid and lower mid-range of the conflict continuum, where forced entry was necessary. It may have applicability in the upper, more intense range of the continuum. However, for the same reasons that drove the Army in 1942 and 1943 to increasingly standardize the tables of organization and equipment (that is, in equipping, manning, supplying, and training massive forces deployed globally), the standard format brigade should also be retained.⁷

On the last point, experience over many years appears to support maintenance of relatively standard brigade packages by branch. One critical reason has been to support execution of repetitive, expensive branch-specific training. This is necessary if the Army is to assure that branch-specific soldier, squad and crew, platoon, company and battalion skills are trained to battle standard. The implication here is that the standard brigades, for lower-order CONOPS scenarios, would serve as "force building block pools" that would provide the companies, batteries or battalions to build the CONDEB brigades. At the higher end of the conflict continuum, under their organic divisions, the standard brigades would serve as the force building blocks.

In a conflict scenario at the higher end of the conflict continuum, the CONDEB brigades might fill with Reserve Component battalions to form standard maneuver brigades. They would be responsible for moving their battalions through a concentrated, prescriptive training program to bring the brigade to standard as quickly as possible. This would allow the Army a means to quickly expand the number of Active brigades ready for deployment.

A more desirable possibility would be to provide a support battalion headquarters with two possible options: a robust organic support battalion along the lines of a current FSB but with capabilities to support all manner of units, light and heavy; or, a battalion with minimal permanent structure that could be quickly filled.

Future Brigades

The preceding discussion is a brief examination of an organizational concept for future force packaging. The concept addresses challenges we must now face in the CONOPS world. It offers a way, on a reduced total force, to package uniquely tailored forces across the conflict continuum. It does not suggest the elimination of brigades in a more traditional combined arms configuration. In fact, it argues for both brigades in the force. It offers a flexible approach to building uniquely tailored brigades around an adaptable nuclear brigade headquarters. This tailoring can emphasize a particular BOS, such as fires, against a particular forced entry requirement. This approach is a departure from our current military thinking.

There are also several advantages to this way of thinking regarding the emerging AirLand Operations and nonlinear battlefield doctrinal concepts. The approach may be particularly applicable at the lower range of the conflict continuum. Specifically, brigade-size elements that are capable of being tailored could efficiently emphasize a particular BOS during key phases of an operation. Continued development of this idea may answer some of the tough questions about initial entry forces.

It also points out that formations like the CONDEB brigade might add a mobilization dimension to a smaller Army. The brigades may do this by providing a number of Active Army TOE brigade-level C² elements that can quickly and effectively absorb and train Reserve Compo-

rent subordinate units to standard. This would be a powerful transition tool in a mobilization scenario.

Certainly this discussion has been too brief to extensively examine tactical and operational issues, as well as many of the more detailed organizational and doctrinal considerations. These will necessarily be the focus of later review.

The basic concept proposed here is not neces-

sarily new. However, the recommendation to consider a wider application of BOS capability tailoring, by changing the mix of units, goes a lot farther than current or past Army practice. If post-Operation *Desert Storm* budget constraints continue current trends, not only will this concept address contingency readiness requirements, such a flexible CONDEB organization may become a necessity. **MR**

NOTES

1. A nuclear brigade in this discussion does not apply to nuclear weapons brigades. Rather, the term means a flexible headquarters able to command and control different types of units and varying numbers of these units.

2. Brigade organization during the Revolution, by necessity, had to be flexible. Discussions of how this command and control level operated during the war are provided in Robert K. Wright's, *The Continental Army* (Center of Military History, Washington, DC, 1983), 29, 85, 87 and 97.

3. More recent brigade organizations demonstrated this tendency. A survey of World War II order of battle for brigade organizations shows an arm specific flavor. Shelby L. Stanton's *Order of Battle, US Army in World War II* (Novato, CA: Presidio Press, 1984) clearly states the organization and function of these arm specific brigades (and groups).

4. Employment of combat commands in the armored divisions during World War II demonstrated a very flexible approach to brigade-size force packaging. These units were frequently reorganized against missions using a pool of division battalion assets. A good discussion is provided by Kent Roberts Greenfield, Robert R. Palmer and Bell I. Wiley's *The US Army in World War II: The Army Ground Forces: The Organization of Ground Combat Troops* (Washington, DC: Historical Division, Department of the Army, 1947), 323, 328-29.

5. For a discussion of the Reorganization Objective Army Divisions (ROAD) and the intended operational function of the divisional brigades, see CPT Jonathan M. House's *Toward Combined Arms Warfare: A Survey of 20th-Century Tactics, Doctrine, and Organization*, Combat Studies Institute, Fort Leavenworth, Kansas, 1984, 158-60.

6. Current doctrine stated in US Department of the Army Field Manual (FM) 17-95, *Cavalry Operations* (Washington, DC: US Government Printing Office, 14 February 1986), describes general organization, roles and missions of the armored cavalry regiment and FMs 71-1, *The Tank and Mechanized Infantry Company Team*; 71-2, *The Tank and Mechanized Infantry Battalion Task Force*; and 71-3, *The Armored and Mechanized Infantry Brigade*, all deal with the separate maneuver brigade. These units are described as combined arms

formations of combat arms, combat support and combat service support.

7. Discussion on pages 265 to 382 of *The US Army in World War II: The Army Ground Forces: The Organization of Ground Combat Troops* provides an extensive rationale for standardized combat organizations during World War II.

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MR INSIGHTS

Some Thoughts on Operation *Desert Storm* and Future Wars

By Colonel John D. Waghelstein, US Army, Retired Copyright 1992

Before we become too enamored with our success in the Middle East, we should take a moment to review our penchant for learning the wrong lessons from the last war. While we can take pride in each service's contributions to the victory, there are some disquieting comments that somehow this is a precedent-setting war—"This is what we've trained for, and this is how wars should be fought." What is lacking is a grasp of history coupled with a sense of reality. As reluctant as I am to conjure up the old saw about repeating history, it may be useful to remind ourselves that we could be repeating the pattern that led us into trouble before.

After the American Revolution, we ignored the contributions of our irregular forces in three of the four theaters of operation and glorified the Continental Army's role as the sole reason for our success. Subsequently, Brigadier General Josiah Harmar and General Arthur St. Clair met with disaster at the hands of Indians who failed to cooperate, and the Army left a large number of dead in the forests of the Northwest Territory (1791 and 1792). General "Mad" Anthony Wayne assumed command, and following a major reorganization and two years of extensive training, the Army finally put the Shawnees and their allies out of business at Fallen

Timbers, Ohio (1794).

The War of 1812 witnessed regular forces, under General Winfield Scott, stalemating or defeating British regulars. These successes were followed by still more victories over the Indians in the Creek (1813-1814) and Black Hawk (1831-1832) wars. This was how wars should be fought. The Indians cooperated in their own destruction by defending fixed positions, thereby providing the regular establishment with the desired conditions to play out their strong suit of superior organization, discipline and firepower.

One of the unfortunate legacies of the time was the inability to deal with a new foe who learned from previous experience (its own and ours) and decided not to cooperate in its own destruction. The Second Seminole War lasted seven years (1835-1843) and witnessed seven, largely ineffective, commanders vainly attempting to apply previously successful techniques such as set-piece battle. Rather than defeating the Seminoles, the US Army declared victory and went home (a war-termination technique repeated in Southeast Asia in 1973).

Both before and after the American Civil War, the US Army's intellectuals focused on European war, first stressing the French and, later, the Prussian models. They ignored the doctrinal and training lessons of the Indian Wars, a number of which were long, drawn-out affairs that ground down both the Indians and their US Army pursuers. What Russell F. Weigley calls "The American Way of War" became institutionalized in the 1860s in its focus on massed firepower and overwhelming force. He also notes our habit of repeating the painful re-learning process in each little war in which we find ourselves.

Following the Civil War, we spent the next 25 years fighting Indians and did not fight another European power until the century was almost over. The European tactics learned at the military academy had to be discarded for more practical methods that worked on the Great Plains and in the Desert Southwest. Since that time, war has had to look like the massive confrontations of our Civil War experience. That was how war was supposed to be fought.

In our minds, the smashing successes against the Spanish navy and army justified the Civil War precedent. What followed in the Philippines (1899 to 1913), however, did not. It was a nasty and unpopular commitment of US forces that generated a considerable amount of criticism at home and hatred among many Filipinos. Once again, conventional commanders often found the enemy to

be uncooperative and unwilling to follow the script. A series of innovative campaigns and unconventional operations under such leaders as Brigadier General J. Franklin Bell and Colonel Frederick Funston, culminating in the 1901 capture of the insurgent leader General Aguinaldo, finally took the starch out of the resistance. The Moro phase of the insurgency, however, continued for 11 more years.

The point of this walk down memory lane is to emphasize the United States' tragic difficulty in dealing with unconventional warfare. If the next war coincides with our concept and our enemy cooperates by providing a challenge in conventional terms, as they did most recently, there should be no difficulty in refighting Operation Desert Storm. If, however, an enemy decides not to challenge us directly, but rather finesse our strong suit and opts for a low-intensity setting, we could find ourselves in a dilemma similar to our experiences in the Indian, Philippine or Vietnam wars.

It is clear, the military focus in the post-Cold War era is on regional conflicts rather than an Armageddon-like struggle with the Soviets. The focus is on deployments into regions where local conflicts threaten global tranquillity and US interests. Ideally, the would-be aggressor will, once again, face an array of overwhelming force manned by a coalition of interested nations intent on dampening the ardor of the adventurer. This scenario makes more sense than the return to the "normalcy" and isolation that followed World War I. It is far better to influence aggression early than to begin the process with a Pearl Harbor.

However, what concerns many strategists focusing on the lower end of the wartaking spectrum is the United States' penchant for seeing wars and other armed confrontations as anomalies. There is value in the recent resuscitation of Clausewitzian thinking regarding war. What is being reexamined in the classrooms of the various war colleges is the role of war as politics by other means. But there is, as yet, little rethinking about the US view of warfare that sees war as separate and distinct from peace. Vladimir Lenin's statues are coming down and his message of party omnipotence will hopefully and probably be consigned to the dustbin of history where it belongs. There is, however, a case to be made that Lenin was a better student of Carl von Clausewitz than are most Western military thinkers. He saw confrontation, struggle and war as an unbroken thread, a point of view very different from that held by most Americans.

Let us assume, for a moment, that Lenin's views on revolution and the seizure of political power are

held by some group of revolutionaries not tied directly to the Soviet Union. They may have despaired of Soviet material support to achieve political power but may still draw on Lenin's inspiration and methodology, particularly when Leninism can be modified to meet local objective conditions. These revolutionaries, after all, are in pursuit of the ultimate narcotic—political power—and are not easily dissuaded even if the source of inspiration has abandoned the teacher's message. *Glasnost'* and *perestroyka* may have not deflected these true believers from their quest, nor has the renunciation of communism by the Mother Country in any way diverted them from the prize.

Let us further assume that these would-be troublemakers have modified revolutionary insurgency theory to meet local conditions and have found some useful elements in the Chinese revolutionary experience. An adaptation of the Asian variation of Lenin, as developed by Mao Tse-tung, holds an allure that will not be put off by Soviet revisionism and heresy. What problems could this group pose for regional stability, and more important, how would conventional military force be employed in countering it?

During the counterinsurgency era of the 1960s, it was the Cuban model that many Latin American revolutionaries sought to emulate. These were delightful days for the counterinsurgents because the Cuban export model was a repeated failure. Time and time again, guerrillas were put to the *sins* because they failed to adapt to local conditions, and they presented a threat that could be countered with military means.

The great debate between Moscow and Havana regarding the proper methods to achieve power was much more than an intellectual exercise. The debate was lethal, with doctrinally competitive organizations trying to kill each other or assisting the counterinsurgents in the killing of their theological rivals. It was only after 20 years of failure that synthesis took place. Failures drove the players to recognize the obvious. The political organization, discipline, patience and infrastructural preparation as stressed by Lenin and a heroic guerrilla army like Ernesto Che Guevara's are necessary ingredients for success. In 1979, the first successful revolution in the Western Hemisphere in 20 years took place in Nicaragua, and there was a near-success in El Salvador. It was the result of a willingness, albeit a bit late, to modify strongly held beliefs to win the game. So what?

It is evident that Havana's most important resident cannot defy the actuarial charts forever, and when this happens, Cuba may finally cease to provide the inspirational and support role in the ex-

port of revolution. It is probable that closer ties with the United States may evolve, dictated by Cuban economic reality rather than continued confrontation and revolutionary zeal. Unfortunately, there is little comfort from this prognosis, and there is another problem.

Long before Fidel Castro came down from the Sierra Maestra mountains to fill the vacuum left by Zaldivar F. Batista, there was a model of insurgency generally agreed to be the most difficult to counter—Mao's model. It called for a deep-rooted infrastructure, rural-based support and nearly flawless application of Sun Tzu's ideas about warfare. What was for a half-century a purely Asian challenge has made the trip across the Pacific and has found a home in the Andes.

The *Sendero Luminoso* (Shining Path) movement is but the latest threat to regional stability. In this case, it is limited to a particular ethnic group with a unique history and culture. Its insurgency stresses all the features of the Chinese model in an Andean subculture that has had four centuries to tally its grievances and 20 years to prepare for the struggle. It is a movement that embraces a near-messianic dedication to eradicating the injustices of Peruvian society and has an extremely innovative lethality, a demonstrated willingness to establish liaison with other revolutionary groups and a penchant for finding funding from some extremely un-Marxist sources. This threat to regional stability has already spread beyond Peru's borders and is seeking disciples in Ecuador and Bolivia. Funding, once a major source of difficulty for the insurgents, has been improved by their alliance with the cocaine producers in Peru's Upper Huallaga Valley. It is safe to assume that the Shining Path is but one example of a regional threat to stability.

The historical examples noted demonstrate the adaptive capacity of our enemies and the chronic slowness of the US Army in anticipating change. They provide food for thought when contemplating

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the next war. We need to remember history's lesson of the uniqueness of each war. The near-perfect execution of *Desert Storm* will not be easily reproduced elsewhere, particularly if the enemy has limited resources and fewer delusions of grandeur. We cannot assume the next troublemaker will have a similar attack of terminal stupidity and slavishly follow Saddam Hussein's path.

Other forms of regional instability will require regional solutions based on situation-specific analy-

ses. More likely, the next conflict will require an entirely different mix of political considerations, coalitions and correlation of forces. It is likely to be in our own backyard where we carry the baggage of Yankee imperialism. If we accept the possibility of a different challenger, we must be prepared to develop a different set of responses that may not involve the massive application of fire-power and maneuver in the traditional American way of war. **MR**

MR WWII ALMANAC

Singapore: Legacy of a Battle

By Lawrence Massengill

The 50th anniversary of the surrender of Singapore—Britain's "Gibraltar of the East"—to Japanese forces in World War II is marked on 15 February 1992. Winston Churchill called it "the worst surrender and largest capitulation of British history." More than a massive military defeat, it would also have vast geopolitical consequences.

Forces of General Tomoyuki Yamashita stormed ashore on the Malay Peninsula hours before the Pearl Harbor attack, plunging Britain into the Pacific war and sealing Singapore's fate. Overwhelmed by Japanese battle-hardened troops, armor and air power, British defenders under Lieutenant General Arthur E. Percival retreated down the 600-mile-long peninsula to make their final stand on Singapore Island.

Percival surrendered his 85,000-man garrison to a victorious Yamashita whose blitzkrieg-like campaign had conquered the "City of the Lion" in 70 days. The ignominy of defeat was heightened by the fact that the defenders had outnumbered their foes by a healthy margin. It was a textbook example of an ill-trained, poorly equipped and badly led army's demise at the hands of a smaller, but qualitatively superior, force.

The debacle underscored the folly of British defenses that relied on the fixed batteries dominating the island's seaward approaches. But the "back door" assault left Singapore's guns powerless to engage the attackers. Absence of British armor and air strength were other decisive factors. Combined with Percival's overall lack of readiness and uninspired battlefield tactics, the outcome was never in doubt.

The military consequences of Singapore's fall were enormous. Powerful enemy assets became available for other campaigns, and the threat to Burma and India grew acute. Moreover, capturing a reputedly impregnable stronghold gave the Japanese an aura of invincibility that undoubtedly weakened the resolve of hard-pressed Allied defenders elsewhere. The loss of Singapore also deprived the Allies of a vital naval base, as well as critical tin and rubber resources.

From a geopolitical view, Singapore's surrender had dramatic, long-term effects. Long the symbol of colonial power and prestige, its defeat ended the myth of Western superiority and, with it, Britain's centuries-old Asian influence. It foreshadowed the near-total dissolution of its empire in the postwar years.

Japan's defeat of a numerically superior British force had a powerful, psychological effect. It raised Asian self-esteem to new heights and gave rise to demands for self-determination. Ultimately, it led to the establishment of an independent Malaysia in 1963 and the creation of the city-state of Singapore two years later.

But the wave of nationalism that grew from the British surrender extended far beyond Malaysia and Singapore. Strong anticolonial sentiments, smoldering for decades, emerged at war's end, most notably in Indochina where, first, the French and, later, the United States waged a quarter-century-long battle to contain communist forces.

It can also be argued that independence movements in Burma, the Dutch East Indies and the Philippines were all fueled by Singapore's fall. The

communist orientation of some movements came from communist-led resistances that developed in Japanese-occupied territories during the war. The power vacuum created by Japan's surrender elevated the communists to political prominence and set the stage for widespread insurgencies.

Singapore's fall was a prologue to a long and complex chain of events that could hardly have been imagined in 1942. Few battles have triggered more change or had greater impact on an entire geographic region. Today's map of Southeast Asia, as well as its postwar development and political

character, stems directly from the tragic events that overtook the "City of the Lion," nearly a half-century ago. **MR**

Lawrence Massengill is a military historian and free-lance writer from Huntington Beach, California. He has been an aerospace industry executive, seminar leader and management consultant. He served in the US Air Force from 1946 to 1950. He received a B.A. from Upper Iowa University.

February 1942 Compiled by Major George J. Mordica II, Combat Studies Institute

Sunday 1—Units of US Pacific Fleet attack Japanese air and naval bases in the Gilbert and Marshall islands.

Last automobile assembly line ceases car production; turns to war production.

Norway: A puppet government is established under Vidkun Quisling.

Monday 2—General Claude J. Auchinleck orders British Eighth Army to hold Tobruk as a supply base for future offensive operations.

British supply convoy sets sail from Alexandria, Egypt, to resupply Malta.

Tuesday 3—Japanese begin preinvasion attack on Port Moresby, New Guinea.

Wednesday 4—Field Marshal Erwin Rommel captures Derna, Libya.

Sunday 8—Soviets cut off 90,000 German troops near Demyansk in the Soviet Union.

Monday 9—First meeting of the organization of the Joint Chiefs of Staff.

Wednesday 11—Japanese drop appeals for Singapore to surrender.

Thursday 12—German warships *Scharnhorst*, *Gneisenau* and *Prinz Eugen* proceed up the English Channel under British attack.

Sunday 15—Malayan Campaign ends with the unconditional surrender of Singapore to the Japanese.

Monday 16—German naval commander Karl

Doenitz orders mass U-boat attacks on US merchantmen off the eastern seaboard; U-boats sink 65 ships in US waters during the month.

Wednesday 18—US War Department orders overseas contract activities throughout the world militarized.

Thursday 19—Darwin, Australia, is attacked by the largest single Japanese air effort since the attack on Pearl Harbor.

Friday 20—The United States grants \$1 billion loan to the Soviet Union.

President Franklin D. Roosevelt signs executive order to intern West Coast Japanese-Americans.

Sunday 22—Roosevelt orders General Douglas MacArthur to leave the Philippines.

Monday 23—Mutual Aid Agreement signed between the United States, United Kingdom, Australia and New Zealand.

Japanese submarine shells oil refinery near Santa Barbara, California, (first mainland attack).

Tuesday 24—Japanese forces on Wake Island are bombed by US aircraft from Task Force USS *Enterprise*.

Air Marshal Arthur Harris takes over Bomber Command.

Friday 27—Battle of Java Sea ends with a decisive defeat for Allied naval forces by the Japanese navy.

Royal Air Force bombers bomb the German battle cruiser *Gneisenau* in floating dock.

MR LETTERS

Producing Warfighters Flawed

I strongly disagree with both the basic premise of Major Jose A. Picart's article, "Expert Warfighters With Battlefield Vision" (May 1991 *Military Review*), and with his recommendations for officer management. Picart asserts intuitive thought processes can be analyzed with scientific precision, and virtually anyone can develop intuitive abilities that would make them an "expert warfighter."

Picart is correct to extol the virtues of experience, formal education and applied thought and study as a means to improve one's intuitive thought process. However, there is yet no scientific way to produce "great battlefield captains." There is no system where we can put a US Army officer in one end of a process and, 15 years later, out comes a Lee, Grant, Napoleon, Patton or Alexander. Hundreds of generals have studied the *art* of war, had much battlefield experience and been competent, at best. So, although one can certainly improve one's intuitive capabilities, there is no scientific formula to guarantee a great captain or even an expert warfighter.

Picart is vague in distinguishing between an expert warfighter and a mere "competent and confident" leader. What precisely is the difference? What can the expert warfighter do that the competent and confident leader cannot? And at what level? Company? Battalion? Corps? Army? There is no guarantee that a superb battalion commander will be a great army commander.

Picart's recommendations for officer management do not guarantee more capable commanders at any level. First, identifying great captains in peacetime is extraordinarily difficult. Picart advocates that, based on an officer's first six to eight years in the Army, with company command as the primary determinant, the personnel system should identify those in the expert warfighter track, a task that is virtually impossible and certainly premature. Furthermore, many nonwarfighting assignments allow for the interchange of ideas with fellow professionals and for that very self-study that Picart advocates. Such assignments as a Reserve Officers' Training Corps instructor, National Guard adviser, West Point instructor or US Army Training and Doctrine Command instructor all provide numerous opportunities to discuss and study warfighting

with colleagues. Plus, officers in those assignments have sufficient practical experience to lend a foundation of reality to such discussions and to even compare battlefield techniques. Such assignments can be as valuable to an officer's professional growth as an operational assignment with troops.

Second, Picart does not quantify how much warfighting experience is required. How many company commands does this expert warfighter need? How many Combat Maneuver Training Center or National Training Center rotations are required? How much time should a major have as an operations and training officer or executive officer?

In sum, there is no magic scientific formula to produce officers with the intuition of great captains. We can improve the intuitive process they possess, but we cannot scientifically produce genius. We can produce competent and confident leaders. There are many other qualities such as strength of character, stamina, courage and determination that comprise great captains. Intuitive decision making is not the only factor. Picart advocates establishment of an elite group of officers on the expert warfighter track much too early in their careers by some unspecified method. His basic premise is flawed, and his recommendation for officer management should be rejected.

LTC Philip D. Allum, USA, Heidelberg, Germany

Producing Warfighters Possible

I thank Lieutenant Colonel Philip D. Allum for his comments and the editor for this opportunity to respond. In his letter, Allum disagrees with both the basic premise of my article and my recommendations for officer management. He suggests I may have failed to precisely articulate them in my original article, so I welcome this opportunity to clarify them.

First, Allum states the basic premise of my article is that "intuitive thought processes can be analyzed with scientific precision . . ." This is not the basic premise. Scientists (among them a Nobel laureate) have identified four characteristics of expert performance they believe are the essential ingredients of intuitive thought. The conclusion they draw from their research on intuitive processes is simple. Intuition is the product of a well-organized body of expert knowledge. The implication I draw

from this conclusion for our profession is equally straightforward. Battlefield intuition is the product of a well-organized body of warfighting knowledge. This is the basic premise of my article. Furthermore, I present this basic premise to support my recommendations for developing a corps of senior "expert warfighters."

Second, Allum states I advocate that, "based on an officer's first six to eight years in the Army, with company command as the primary determinant, the personnel system should identify those in the expert warfighter track," and he says this is "a task that is virtually impossible and certainly premature." My own extensive research into US Army selection board processes suggests that future battalion and brigade commanders can be and are, in fact, identified after only six to eight years in the Army. They are identified by highly successful company-level commands.

Most battalion and brigade commanders are selected from the pool of highly successful battery and company commanders. If an officer does not have a successful company-level command, he or she will probably not be a battalion or brigade commander. Under the present personnel management system, company command is the first cut for most future senior commanders. If future battalion and brigade commanders come from this pool of successful company commanders, why shouldn't the officer management system intensively manage their assignments? Furthermore, why not place these officers on a single track and intensely manage their careers in a manner that scientists believe may enhance their development of battlefield intuition?

Allum is concerned that formalizing a system that tracks this pool of highly successful company-level commanders might establish "an elite group of officers . . . much too early in their careers by some unspecified method." First, as described above, our current system identifies potential senior combat leaders early. Second, our present system creates senior combat leaders that are and should be an elite group of officers. And third, what I propose in my article is a process that adds specificity to our present system by intensely managing selected officers' professional development through operational assignments, military school performance and extensive individual study.

Finally, I agree with Allum that not everyone can develop the warfighting expertise and intuitive abilities we want our senior combat leaders to possess. And yes, there is no "magic scientific formula" to produce "great captains." I do not suggest now, nor have I ever, that we can "scientifically produce genius." The education and officer man-

agement system I propose for developing expert warfighters requires that officers make a long-term commitment and dedicate themselves to the pursuit of warfighting knowledge. Intense individual study, tough assignments and excellence in military schools are no magic formula. What I propose will certainly not guarantee more capable commanders at the senior levels, but if science and my basic premise are correct, commanders will possess greater battlefield intuition.

As scientists advance our understanding of human performance, we must be willing to apply this new understanding wisely in our profession. Just as advances in material technology are applied to enhance the effectiveness of our combat weapons, our scientific understanding of human performance can be applied to enhance the effectiveness of the Army's leadership. An inability to understand these scientific advances should never be the basis for rejecting them.

MAJ Jose A. Picart, USA, Department of Behavioral Sciences and Leadership, US Military Academy, West Point, New York

A Case for "Logistics"

In the September 1991 *Military Review*, Lieutenant General William G. Pagonis and Major Harold E. Raugh Jr. provide some keen insights into the underlying success of the logistic support during operations *Desert Shield* and *Desert Storm*. They state that throughout the recent Gulf War experience, logisticians were "responsible for sustaining [emphasis added] more than 300,000 soldiers . . . where no military logistic infrastructure had existed previously."

Two key words used throughout the article are *logistics* and *sustainment*. Pagonis and Raugh clearly define sustainment as something that logistics provides for our soldiers. They are not two interchangeable words. As we move out of the *Desert Shield* and *Desert Storm* time frame and begin to shape the doctrine for the future, it is critical that these and other key words be clearly defined.

What is logistics? As found in any English dictionary, the root of the word comes from the Greek words *logos*, which means "to reason," and *logistike*, which means "to calculate." The earliest recorded English language usage is around the time of the Civil War. The current definition of the word is "the aspect of military science dealing with the procurement, maintenance, and transportation of military materiel, facilities and personnel." From the same source, a second definition is "the handling of the details of an operation." The first definition

provides a clue to the word's importance as a part of military doctrine. Clearly, logistics is a part of the art of military science.

What, then, is sustainment? As also found in the dictionary, it is "sustaining or being sustained; support; also, a supporter." To sustain is "to suffer, to endure; or to rest for support." It is "having the ability to sustain, enduring; supporting; giving strength; corroborating." There is no mention of a relationship to military art. In its basic form, the word "sustain" is more of a verb than a noun. Reviewing sustain or sustainment in any thesaurus reveals words such as "carry, support, hold, hold up, uphold; truss, shoulder, buttress, brace, shore up, underprop, underpin, reinforce; bear, bolster, and strengthen."

Tracing modern usage of the word "logistics," your journey begins in the early 19th century. Henri Jomini is generally credited with coining the word in his writings. In his work, *The Art of War*, he defines logistics as "the practical art of moving armies" under which he also includes "providing for the successive arrival of convoys of supplies and establishing and organizing . . . lines of supplies"; hence, the common association with supply and transportation. However, the word logistics continued to evolve.

Logistics has always been associated with a broad range of military support activities. In the preface of James A. Huston's historical work, *The Sinev of War: Army Logistics, 1775-1953*, he states that logistics only came "into general military use shortly before World War I but has been popular only since shortly before World War II, although its substance has been of concern as long as there have been armies." Huston goes on to state that "in Army usage it has come to include four principal elements in the support of military operations: supply, including determination of requirements, procurement, and distribution; transportation; evacuation and hospitalization; and service."

As our doctrine grew so did the use of the word logistics. In the 1949 issue of the US Army's *Field Service Regulation*, it was defined as "that branch of administration which embraces the management and provision of supply, evacuation and hospitalization, transportation and service. It envisages getting the right people and the appropriate supplies to the right place at the right time and in the proper condition."

Martin van Creveld's definition used in *Supplying War: Logistics from Wallenstein to Patton* runs along similar lines. He calls logistics, "the practical art of moving armies and keeping them supplied." However, this is really too narrow a scope for modern times. A broader definition is provided in current Department of Defense doctrine. Today's doctrine

really encompasses all of the combat service support functions—ordnance, quartermaster, personnel service support (adjutant general and finance), transportation and health services.

Joint Publication 1.02., *Department of Defense Dictionary of Military and Associated Terms*, defines logistics as "the science of planning and carrying out the movement and maintenance of forces. In its most comprehensive sense, those aspects of military operations which deal with: design and development, acquisition, storage, movement, distribution, maintenance, evacuation, and disposition of materiel; movement, evacuation and hospitalization of personnel; acquisition or construction, maintenance, operation, and disposition of facilities; and acquisition or furnishing of services." Curiously, the word sustainment is not in this publication.

Army doctrine does not define the word sustainment. The earliest reference to it that can be found in doctrine begins with the 1986 US Army Field Manual (FM) 100-5, *Operations*. In this manual, one entire chapter is devoted to "Sustainment Planning and Execution." FM 100-5 subsections go on to discuss the Sustainment Challenge, Key Sustainment Functions, Sustainment Imperatives and Organization for Sustainment, among others. All this is done without a definition of the scope of the word. Therefore, we can easily relate to the word logistics as a noun that defines those activities that provide the Army "the substance that physically permits an army to live and move and have its being." However, it is more difficult to relate the word "sustainment" with these activities as a part of our doctrine.

I am not proposing that the word sustainment be banished from our doctrine. It has a place and should be used appropriately as a description of what logistics does for our Army, such as logistics provides sustainment to the force. However, I believe that it is clear that the word sustainment cannot be interchanged for the word logistics in our doctrine.

**LTC Nathan J. Power, USA,
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Advanced Military Studies, USACGSC**

Disagrees With Review

Reading the review of Michael McCaig's *Perestroika and Soviet National Security* published in the July 1991 *Military Review* raises a number of issues about reviewing as a craft and the field of Soviet military studies. Perhaps my concerns are distinct enough from those of the reviewer to warrant publication. We are of different generations: She is an

experienced officer with considerable writing talent. I am a historian and analyst of Soviet military affairs. She is a disinterested reviewer while I have known the author for nearly 20 years and consider him a colleague.

Having read the manuscript, recommended publication and used the work in my own teaching, I disagree with the reviewer's conclusion about its value. My appreciation of the work is, of course, informed by over 25 years in the field of Soviet studies, especially Soviet military studies. My disagreements with the reviewer come down to three points: methodology, interpretation and the charge against the author's patriotism.

First is the question of methodology, such as the use of Soviet sources to seek to understand Soviet national security policy. This is an established method, used by scholars and analysts. Having taken part in the Dalhousie Maritime Workshops in Canada where McC Gwire helped pioneer that methodology, I find its use fundamental to our understanding. Indeed, an entire generation of younger scholars, such as Christopher Donnelly and myself, learned our craft there. Indeed, both Donnelly's Soviet Studies Research Centre in England and the Combined Arms Center's Soviet Army Studies Office (now the Foreign Military Studies Office), Fort Leavenworth, Kansas, expanded the use of open-source exploitation of Soviet sources. It is simply the foundation of our craft. McC Gwire always emphasized the limits of that methodology, given the closed nature of Soviet society. But, with all its limitations, it was still the best tool available when joined with rigorous, objective analysis.

Second, McC Gwire's interpretation is a matter of explaining the shift in Soviet national security policy under *perestroika*. McC Gwire argues that US policy, that is the use of coercive diplomacy, contributed to these changes but that the Reagan administration's defense buildup was excessive in costs and involved grave risks. As an explanation of the changes in Soviet policy, that is the retreat from the Third World, the abandonment of hegemony in Eastern Europe and the adoption of arms control to reduce the image of threat associated with So-

viet military power, his interpretation seems to be coherent and plausible. McC Gwire emphasizes the role of US policy in bringing about that change by the implicit threat behind deterrence and containment. Surely, domestic costs, especially economic stagnation, social crisis and political disintegration were the price to be paid for an ideologically engendered, militarized Cold War and undermined Soviet totalitarianism. But there were also domestic costs for the West, especially the United States. Whether they were excessive remains to be seen. His criticism of US policy can be questioned, but it requires a marshaling of evidence and exposition. Alas, the reviewer dismisses the argument but does not refute it.

Finally, there is the question of McC Gwire's "patriotism," which the reviewer raised. One basic task for any reviewer before he takes pen in hand is to establish who his author is. Writing is a social act of communication between author and reader. The reviewer, as intermediary between the author and his potential readers—in this case US Army officers—has a responsibility to inform his public about the author's background, expertise and previous publications. And here is the problem. McC Gwire is not an American. He is a citizen of the "West," having served with distinction in the Royal Navy during World War II and the Cold War. Later, at the Dalhousie Maritime Workshops, he invited scholars from many countries to address the issue of Soviet naval development and fostered a climate of free exchange, rigorous debate and objective analysis. At no time was the patriotism of anyone called into question. Disagreements, often sharp, became the vehicle for critical insights.

With the conclusion of the Cold War and the victory of the US-led coalition in the Gulf War, we require even more tolerance for debate. In a more unstable and dynamic world, where the unity of those upholding liberty retains its importance, the struggle to win the peace will prosper only if that same commitment to open debate prosters. America is best served when it listens to the criticism of its friends. To do less is an act of hubris.

Jacob W. Kipp, Foreign Military Studies Office, Fort Leavenworth, Kansas

American Military Institute 1992 Annual Meeting

The 1992 annual meeting of the American Military Institute (AMI) will be hosted by the US Marine Corps Command and Staff College, Quantico, Virginia, on 10 and 11 April 1992. The theme of the conference will be "Joint, Combined, Amphibious and Expeditionary Operations." Proposals for individual papers and for complete sessions are sought. Scholars and graduate students who are commencing work on a new research project are encouraged to submit proposals for "works-in-progress" sessions. Send proposals to Dr. Donald F. Bittner, AMI Program Chairman, Post Office Box 307, Quantico, Virginia 22134-0307. If you have questions, please call (703) 640-2746.

MR BOOK REVIEWS

FORCE AND ACCOMMODATION IN WORLD POLITICS by Stanley E. Spangler. 359 pages. Air University Press, Maxwell Air Force Base, AL. (Available from the Superintendent of Documents, Government Printing Office, Washington, DC.) 1991. \$15.00.

With the dissolution of the Soviet Empire and uncertainty regarding the shape of the new security landscape, it is a difficult time to try to come to grips with US national security policy. This is particularly true with respect to the utility of military force and strategy options. Even in such circumstances, this book is a welcome effort.

Grappling with the complex, difficult issues of the relationship between coercion and accommodation in international politics, Stanley E. Spangler offers guidelines for the effective use of positive diplomacy in the new strategic era. This study rests on two hypotheses. First, the United States and the Soviet Union have "ignored, underused, or misused" what the author calls positive inducements (the "carrot" approach). Second, positive inducements can contribute to international settlements and can offer long-range stability.

The first part of the book is analytical and historical, aimed at "Factors Inhibiting Accommodative Diplomacy since World War II." This is followed by four case studies: Quemoy Crisis of 1958; Berlin Crisis of 1958-1959; Berlin Crisis of 1961; and the Cuban Missile Crisis and the Vietnam War. A singular theme emerges from these studies. The US penchant for formulism—the containment formula—prevented effective orchestration of coercion and inducement by the military to achieve foreign policy goals over the past decades. The last part of the book is a summary and conclusion on what all of this might mean in the new security era.

The author draws a distinction between positive diplomacy and coercive diplomacy. Where coercive diplomacy relies heavily upon the "stick," positive diplomacy balances coercion with accommodation—the carrot. He notes that while "there is no way to prove it . . . positive diplomacy . . . is in most cases, a far more sound way to approach international crisis situations than is a basically coercive policy emphasizing military force." It follows that, when used properly, military force can be a significant factor in generating an accommodative process between adversaries.

Some will disagree with the author on several counts. In Vietnam, for example, the author argues

that a more accommodative approach may have achieved more for the United States. Yet, others saw the North Vietnamese as uncompromising, regardless of the efforts of the United States. Also, some will take issue with the selection of the case studies. In most of the cases, the direct or indirect focus is on the relationship between the United States and the Soviet Union.

While there are a number of components and factors that shape the accommodative process—positive diplomacy—the effectiveness of the process is context-dependent. In this respect, three factors are particularly relevant: "ability to empathize with adversaries . . . image of one's self and world view, and . . . international expertise." The problem is that each of these factors is largely subjective in nature and requires flexibility, sensitivity and compatible mind-sets among adversaries. Such matters are not easily examined and even more difficult to shape into an analytical framework or into policy design, although there is a hint of this in the book.

These matters are both the strength and weakness of the book. The book's strength is in the broad portrayal of relationships between coercion and accommodation in international politics. Its weakness stems from a framework based on highly subjective factors ranging from personality and character of actors and understanding of foreign cultures and mind-sets to the need for sophisticated orchestration of military force and accommodation (carrot and stick).

In any case, the author provides fresh insights on the notion of positive diplomacy. The study of the relationships between force coercion and inducements is well thought through and reinforced by the author's success in triggering serious rethinking about these relationships. This book is particularly timely as many policy makers now seek appropriate responses to the changing dynamics of the current era.

Sam C. Sarkesian, *Loyola University, Chicago, Illinois*

THE EVOLUTION OF MODERN LAND WARFARE: Theory and Practice by Christopher Bellamy. 314 pages. Routledge, Chapman & Hall, Inc., New York. 1991. \$45.00.

Christopher Bellamy performs a valuable service to military instructors, defense analysts, political science teachers, the free press, legislators and the

public-at-large by providing each with a purposeful signpost to guide them through the vast complexity of modern land warfare. As a senior research analyst for the University of Edinburgh's Centre for Defence Studies, a Russian linguist and a Sandhurst-educated Royal Artillerist, with a master of war studies from Kings College, the author brings a wealth of research and practical experience to his survey of the development of modern combat.

This military history summary is brief, handy and easy to understand. By explaining the times, the problems and the thinking that propelled the evolution of land warfare, Bellamy makes sense of over 5,400 years of human conflict. He begins with the nature of human conflict, then proceeds to the escalating (and sometimes concomitant) levels of conflict, the nature of war, the enduring principles of war, classic attack and defensive techniques, the strategies of maneuver and attrition and military operational terminology. Finally, he concludes with the characteristics of human military systems.

The major strength of this book is Bellamy's concentration on issues considered to be central to the educated discussion of modern land warfare: the operational level of war, the origins of air-land battle, the Asian and European use of mobile columns and advanced detachments, the spatial and temporal implications of large-scale warfare and the shadowy and complex nature of guerrilla conflicts. He reasserts military history's role in modern scholarship and in political science, suggesting that the science of "future studies" without predictive war calculations is unrealistic and absurd. A prudent prognosticator would not predict a future without famine, pestilence or cataclysm; then, why omit war?

This book is an excellent introductory textbook for senior noncommissioned officers, officer candidates and officers, and should be found on every military instructor's bookshelf. It possesses an excellent index, block footnoting and a general, select bibliography. As a US Army Command and General Staff College instructor, I appreciate Bellamy's clear and succinct style. The text is understandable and devoid of jargon or "milspeak," readily providing expository and explanatory information on the essential elements of "land power."

Should you wish to know how the modern battlefield got to look the way it does; should you desire to trace the origins of air-land battle doctrine or inquire why land warfare on the Asian land mass is so different from that in Europe; or should you want to find out why the wisest military counselors have cautioned against commitment of

forces in Asia, *The Evolutions of Modern Land Warfare* offers these issues for your examination.

LTC Frank X. Weiss, USAR, 1154th US Army Reserve Forces School, Fort Totten, New York

THE FUTURE OF BIOLOGICAL WEAPONS

by Barend ter Haar. 109 pages. Praeger Publishers, New York. 1991. \$37.95.

Barend ter Haar's title would lead one to believe this book covers all aspects of the future of biological warfare. This work is, however, much narrower than the title indicates. It does not deal with the existing and future capabilities of nations to inflict mass casualties on the battlefield with biological weapons nor does it delve deeply into biological warfare technology or the tactics and strategy of its use. *The Future of Biological Weapons* provides an excellent survey of the diplomatic history of biological weapons disarmament and efforts toward, and prospects for, achieving meaningful disarmament.

Haar, a Dutch diplomat with considerable experience in biological weapons disarmament diplomacy, devotes about half the text to an examination of the history of biological arms control. He begins with the Geneva Protocol of 1925, discusses the Biological Weapons Convention of 1972, in some detail, and reviews arms control efforts since the convention's implementation. A second chapter looks at the convention's current state. The author reviews the threat, both from the viewpoint of war among nations and from the use of such weapons by terrorists. His conclusion is that although some progress has been made, the convention's major shortcoming is a lack of verification.

The author then looks at the Chemical Weapons Convention as a possible model for strengthening the Biological Weapons Convention. While noting there are significant technological differences, he believes work on chemical weapons disarmament provides useful insights. The final chapter then summarizes the author's ideas on how to proceed with disarmament and how to achieve a verification system that will effectively police the convention.

In addition to the very cogent narrative (backed by copious footnotes) of disarmament efforts regarding biological weapons, the author also provides several appendixes that will be of great use to anyone interested in this topic and in evaluating efforts to achieve disarmament. These include the Geneva Protocol of 1925, the Biological Weapons Convention of 1972, the Final Declarations of the two review conferences held on the Biological Weapons

Convention, the Modalities for the Exchange of Information developed by a meeting of experts in 1987 and the verification protocol text.

The Future of Biological Weapons will be of interest primarily to those concerned with biological warfare and the disarmament efforts surrounding that type of warfare. It will also be useful reading for those concerned with disarmament in general, particularly the disarmament verification aspects. That, of course, includes most of us.

**Daniel E. Spector, Command Historian,
US Army Chemical School, Fort McClellan, Alabama**

TECHNOLOGY OF TANKS by Richard M. Ogorkiewicz. Volume I, 222 pages. Volume II, 424 pages. Janes Information Group, Inc., Alexandria, VA. 1991. Set, \$99.00.

Richard M. Ogorkiewicz, noted defense lecturer and author, has written over 400 articles on tank technology and armored vehicles in publications such as *Armor* and *International Defense Review*. In this recent two-volume collection, he distills his years of observation and analysis into a superb study of tank technology.

From the start, Ogorkiewicz lets the reader know that his purpose is to give a comprehensive account of tank technology, and he accomplishes this in a concise, convincing manner. The books' 16 chapters cover every major aspect of tank technology, from tank guns and ammunition to soil-vehicle mechanics. Ogorkiewicz analyzes, in detail, each of the separate systems that fulfill a particular tank design requirement. For example, in the chapter, "Mobility of Tanks," he develops the concepts of strategic, operational and battlefield mobility; power, speed and rolling resistance; acceleration and agility; and crossing of obstacles.

A strength of this collection is Ogorkiewicz's ability to use photographs, diagrams and graphs to illustrate these concepts. Another strength is in showing how these separate concepts are meshed together so the tank can complete its intended combat role. Perhaps his most important point is that tank technology must evolve to surmount changing battlefield conditions. Tanks were, and continue to be, designed to increase combat effectiveness by allowing armor-protected, direct-fire weapons and crews to move and fight.

Of course, the consolidation into one collection of all this great analysis and detail cannot be done without cost. The only negative point of Ogorkiewicz's effort is the price. At \$99.00, I would borrow it from the library first, before deciding to buy. De-

spite its high cost, this study is the one to read to learn about the evolution and expectations of tank technology.

MAJ John M. Stawasz, USA, School of Advanced Military Studies, USACGSC

THE FRAMEWORK OF OPERATIONAL WARFARE by Clayton R. Newell. 186 pages. Routledge, Chapman & Hall, Inc., New York. 1991. \$30.00.

During the Gulf War, most Americans were besieged by "expert military analysts" on virtually every available television channel. Clayton R. Newell's *The Framework of Operational Warfare* would have been a welcome asset to anyone who wanted to reach a clear understanding of what was going on during that conflict.

Newell's purpose is to offer some structure in analyzing warfare, at all levels, to better understand the chaos that pervades war. This structure is provided by a general application of the familiar five-paragraph field order to each of the levels of war or "perspectives" as Newell calls them. The author succeeds in that an uninitiated reader will discover a method to approach the chaos of war.

The book's shortcomings are on two planes. A reader already familiar with strategy, operational art, tactics and the operations order logic will be confronted with some unnecessary changes in terms, such as the accepted term "levels of war" being translated as "perspectives of war." In a time when more commonly understood definitions are needed, this confuses more than it helps. In addition, there are several passages that are not clearly structured. And there are a few lapses such as citing Horatio Nelson's decisive victory over Napoleon's combined French and Spanish fleet as the defeat of the Spanish Armada.

Despite these minor distractions, the book presents a unique, simplified way to approach the study of warfare. Those who wish to develop skill in analyzing military operations will find this book offers an excellent way to begin. Those who fancy themselves as experts will do well to gain one more approach in their efforts to make sense out of the chaos of war.

**COL Paul T. Mikolashek, USA,
3d Training Brigade, Fort Leonard Wood, Missouri**

INTERNATIONAL HANDBOOK ON CHEMICAL WEAPONS PROLIFERATION by Gordon M. Burck and Charles C. Flowerree. 650 pages. Greenwood Press, Inc., Westport, CT. 1991. \$95.00.

As recent events in the Gulf War demonstrate, the threat of chemical warfare continues to terrify

and revolt the world. Yet, we are told by *The Wall Street Journal*, the British Broadcasting Corporation, the US Government and others that the known or suspected chemical weapons possessor states number about 20 and that number is growing; this, after decades of relative inactivity.

In this exhaustively referenced book, Gordon M. Burck and Charles C. Flowerree systematically review what is known about every country alleged to harbor chemical weapons (with the exception of the self-declared NATO and Warsaw Pact states). Using data through 1990 and the Gulf War, the

authors present the most comprehensive analysis of chemical weapons proliferation since the landmark Stockholm International Peace Research Institute series of the early 1970s.

The authors focus on often misinterpreted indicators of chemical weapons possession (such as defensive preparations, research and development programs, and a sophisticated chemical industry) and the difficulties in bringing chemical weapons technical knowledge into usable battlefield systems. A thorough chapter is devoted to the recent spread of ballistic missile technology.

PASS IN REVIEW

GO TO IT! The Illustrated History of the 6th Airborne Division by Peter Harclerode. 192 pages. Bloomsbury Publishing, Ltd., London. 1991. \$45.00. (Distributed by Trafalgar Square, North Pomfret, VT.)

Peter Harclerode's spirited photo essay honoring Britain's elite 6th Airborne Division represents a valuable addition to an airborne enthusiast's literary collection. Organized chronologically, the book describes the formation of the division and depicts its activities during World War II and in Southeast Asia and Palestine. While Harclerode offers little in-depth analysis of combat operations, his superb photographs and gripping tales of the paratroopers provide the reader an informative and spellbinding view of the organization, training, tactics, soldiers and leaders of the 6th Airborne Division.—MAJ Randy J. Kolton, USA, Headquarters, 3d Brigade, 82d Airborne Division, Fort Bragg, North Carolina

STAFF OPERATIONS: The X Corps in Korea, December 1950 by Richard W. Stewart. 76 pages. Combat Studies Institute, US Army Command and General Staff College, Fort Leavenworth, KS. 1991.

In this well-argued study, Dr. Richard W. Stewart uses the X Corps' campaign in Korea as an object lesson in how corps staffs should and should not function. He shows how X Corps contributed to its own defeat by usurping the division and regimental staff roles and micro-managing the battle. The reason the defeat was not a catastrophe is, in part, because the staff reverted to its proper role. During the retreat to and evacuation from Hungnam, the staff did its job (not someone else's) and did it well. His insights into corps operations and how staffs actually function are worth the careful attention of anyone interested in the operational level of war.—Daniel F. Harrington, Phillips Laboratory, Kirtland Air Force Base, New Mexico

SEALS: UDT/SEAL Operations in Vietnam by T. L. Bosiljevac. 256 pages. Paladin Press, Boulder, CO. 1990. \$3.95 paperback.

US Navy Lieutenant Commander T. L. Bosiljevac produces a historical account of the Navy's Sea, Air and Land (SEAL) teams' evolution from their birth as Naval coastal demolition units in World War II, to underwater demolition teams (UDT) in the Korean War, to today's SEAL teams. He focuses on the factual recounting of numerous UDT/SEAL small-unit combat experiences, including actions in Vietnam, where UDT/SEAL teams showed extraordinary personal courage and staunch small-unit cohesiveness against unfavorable odds. Chronologically arranged, well-documented and thoroughly researched, it is required reading for students of small-unit tactics, counterinsurgency warfare or the Navy's involvement in Vietnam.—LT Edward G. Gallrein, USN, Special Warfare Naval Post Graduate School, Monterey, California

Ground rules for interpreting allegations of chemical weapons development and use put into perspective many recent media accounts. A history of political attempts to restrict proliferation, focusing on the 1925 Geneva Protocol, as well as economic and military actions toward the same goal, demonstrates the difficulty of "putting the genie back in the bottle." The authors description of chemical weapons production technology manifests the difficulty in restricting technologically advanced states from obtaining a chemical weapons potential.

As the only recent large-scale and thoroughly documented case of chemical weapons' use, the Iran-Iraq War is analyzed in detail. The heart of the book, however, is the detailed, country-by-country analysis of the current state of chemical weapons capability. Each country's historical and geopolitical situation is also summarized, to include its declaratory policy, allegations of production, stockpiles and use, and defensive preparations. Most important, the authors provide a critical analysis and conclusion regarding each country. Their conclusion: Only a small handful of states actually possess a militarily

CNN WAR IN THE GULF:
From the Invasion of Kuwait to the Day of Victory and Beyond by Thomas B. Allen, F. Clifton Berry Jr. and Norman Polmar. 240 pages. Turner Publishing, Inc., Atlanta, GA. 1991. \$29.95.

This first-rate package of text and photography is not intended for the military professional or historian but for the general reader. Arranged chronologically, the first three chapters cover the complex Arab world in more depth than one would expect from this type of work. While CNN has a habit of praising its own coverage, it also has a sense of its shortcomings. In the future, we may look back upon the conflict in Southwest Asia with the objective historical perspective that we now have on past conflicts. Until that time, we have this thorough overview of the war.—**Christopher W. Dunn, Manhattan Kansas**

SECRET DOSSIER: The Hidden Agenda Behind the Gulf War by Pierre Salinger and Eric Laurent. 241 pages. Penguin Books, New York. 1991. \$9.95.

From the title, the reader expects careful and critical analysis, in-depth investigation, illuminating revelations of behind-the-scenes maneuvering on the many sides of the Gulf War or useful insights into the thought processes of the decision makers involved. The authors fulfill practically none of these expectations, quoting extensively from transcripts of speeches and official dialogues. They appear to accept these and other utterances at face value and base their discussions uncritically on the claims expressed therein. Informed commentary during the course of the war from *The Wall Street Journal*, *The Economist* and other reputable journalistic publications would be more educational and rewarding.—**LTC James L. Yarrison, USA, Office of the Chief of Staff of the Army, Washington, DC**

THE GULF, ENERGY, AND GLOBAL SECURITY: Political and Economic Issues. Edited by Charles F. Doran and Stephen W. Buck. 234 pages. Lynne Rienner Publishers, Inc., Boulder, CO. 1991. \$35.00.

Written before the conclusion of the Gulf War, this timely, if somewhat uneven, volume examines US and Western interests in the geopolitically sensitive Persian Gulf. The authors are policy makers and academics who, in the main, succeed in tackling this formidable task. The high points are Phebe Marr's insightful and remarkably prescient chapter on Iraq and Shahram Chubin's particularly valuable discussion within a broad historical and geopolitical framework of the Soviet role in Southwest Asia. Less useful but containing some worthwhile information is Michael Collins Dunn's cliché-ridden chapter about the gulf regional arms race. This book is for those needing a concise economic, political and geostrategic overview of the world's most volatile region.

—**MAJ Arthur T. Coumbe, USA, 260th Military Intelligence Battalion, Florida Army National Guard, Tallahassee, Florida**

significant chemical weapons capability, with several more at the technical threshold.

The authors bring to this substantial and well-written volume the state of chemical weapons proliferation today, with enough background material to substantiate their conclusions. This important, if pricey, book will surely become the standard reference for those following the spread of "the poor man's atomic bomb."

MAJ David N. Clark, *Utah ARNG, Stansbury Park, Utah*

GRAND STRATEGIES IN WAR AND PEACE. Edited by Paul N. Kennedy. 227 pages. Yale University Press, New Haven, CT. 1991. \$25.00.

According to Paul N. Kennedy, author of *The Rise and Fall of Great Powers* and editor of *Grand Strategies*, the crux of grand strategy lies in a nation's ability to "bring together *all* the elements, both military and non-military, for the preservation and enhancement of the nation's long-term interests." What is needed is a grand strategy to "integrate the overall political, economic and military aims to preserve" our long-term interests. Kennedy emphasizes that true grand strategy is "complex and multi-layered" and concerned with peace as much as it is with war. Consequently, the evolution and integration of grand strategy policies "should operate for decades, or even centuries." We should neither construe a grand strategy as ceasing at war's end nor assume it commences only at the beginning of war. It is, according to Kennedy, a "balancing of ends and means" in both peace and war.

What makes this book so important and timely is that it shows how a grand strategy must include "consideration [of] a whole number of factors not usually covered in traditional military histories." It provides historical examples of the vital role played by diplomacy in "gaining allies, winning the support of neutrals and in reducing the number of one's enemies."

The chief purpose of *Grand Strategies* is to assess the grand strategies of several European great powers by the use of historical case studies. These case studies focus on both the military and nonmilitary aspects of these classic examples of grand strategy, offering a synthesis and survey of their respective development and implementation. They also afford us an assessment of their successes or failures at integrating their overall political, economic and military aims in both war and peace.

Kennedy has collected an impressive group of contributors and subjects for this important book. They include John B. Hattendorf on Britain's grand strategy in the War of the Spanish Succession, Michael Howard on British grand strategy in World War I, Eliot Cohen on Winston Churchill and coalition

strategy in World War II. A second section addresses the grand strategy of continental powers: Arthur Ferrill on grand strategy in the Roman Empire, J. H. Elliot on Conde de Olivares and managing decline in imperial Spain, Dennis E. Showalter on German grand strategy, Douglas Porch on French grand strategy and policy in 1914 and 1940, and the evolution of Soviet grand strategy by Condoleezza Rice. In each case history, the emphasis is on identifying and explaining the broad political circumstances relevant to the formation of respective grand strategies.

The world has changed a great deal since the Cold War's early years. These changes are of such significance, according to Kennedy, that they will likely have a dramatic effect upon the evolution of long-term US grand strategy. Therefore, the basic assumptions underlying our grand strategy need to be reviewed and adjusted to ensure their continued relevance to our interests.

Kennedy's book is not intended to be prescriptive. Rather, he seeks to provide us with an awareness of history and an appreciation that the circumstances for each situation, time and place are special. This awareness and appreciation, according to Kennedy, can then coalesce into an understanding that certain fundamental attributes of grand strategy exist at all times and in all countries.

While you may not agree with every conclusion provided, you will find *Grand Strategies* both thought-provoking and timely.

MAJ Thomas J. Williams, USA,
St. Louis University, Missouri

BEYOND THE SOVIET THREAT: The U.S. Army in a Post-Cold War Environment by James Berry Motley. 225 pages. Lexington Books, Lexington, MA. 1991. \$39.95.

One of the most pressing issues facing the US Army is what doctrine, force structure and capabilities are needed as the Cold War ends. Much of the Army's capabilities in the last 45 years or so have focused on meeting the Soviet threat in Europe or in opposing Soviet-supported threats around the world. James Berry Motley, a retired Army colonel, takes a comprehensive look at this issue in *Beyond the Soviet Threat*. Although he asks the right questions, he provides no new answers. He essentially advocates that the Army scale down from its big war capabilities of the recent half-century in favor of lesser and lighter forces able to intervene in Third World crises and perhaps resolve those crises short of war.

This is not a bad book. In fact, it is easily read with lots of interesting and relevant insights. However, I disagree with the author's suggestion that the Army

and the intelligence community have "created" a variety of new Third World threats to continue justification of weapon systems and force structure.

Although the book was written as Operation *Desert Shield* unfolded, it was finalized for its July 1991 publication date before completion of Operation *Desert Storm*. Had the author delayed completion of the book to include an assessment of the Army's performance in *Desert Storm*, he may have been less critical of the heavy army. A lighter and significantly smaller army shaped in Motley's mold would not have achieved the lightning success the US Army (with the other services and coalition partners) realized in *Desert Storm*. Unfortunately, we cannot predict for sure when or where the next conflict may occur. The disintegration of the Soviet threat does not eliminate the possibility of other conventional threats in the future.

LTC John D. Skelton, USA, School of Advanced Military Studies, USACGSC

THE USSR AND IRAQ: The Soviet Quest for Influence by Oles M. Smolansky with Bettie M. Smolansky. 346 pages. Duke University Press, Durham, NC. 1991. \$55.00 clothbound. \$24.95 paperback.

The "good news and the bad news" timing of the publication of *The USSR and Iraq* has surely made the authors cringe. It came out in early 1991, just missing the "100-hour war" and its international impact. That is the bad news. The good news is that the book is still timely enough to offer a detailed look at Iraq and its relationship with the superpower Soviet Union.

Oles M. Smolansky and Bettie M. Smolansky are husband and wife scholars with distinguished academic credentials. He is a professor of international relations at Lehigh University, Bethlehem, Pennsylvania, and she is a professor of sociology at Moravian College, Bethlehem, Pennsylvania. Together, they have produced a richly detailed chronology of Soviet-Iraqi relations since 1958.

The authors state their surprising purpose at the outset—to dispel the belief that the Soviet Union has ever successfully influenced or manipulated Iraq! That is an interesting approach surely to get a reader's attention. In fact, the Smolanskys go to great length to show that the Soviet Union actually dances to Iraq's tune, which is a real switch from the commonly held belief of Soviet international behavior. While their argument is not convincing, their premise is fascinating.

The book contains a number of chapters, but the ones dealing with the Kurdish problem, the Persian Gulf states and the Iran-Iraq War are the best.

The Soviet Union is portrayed as a friend to all, maneuvering to avoid taking sides in any conflict while trying to gain influence through the prolific use of "treaties of friendship and cooperation." Iraq, on the other hand, is portrayed as a strong, sovereign nation with an undisguised desire for regional hegemony. Considering recent world events, that part sounds familiar.

The value of this book is certainly not up to its exorbitant price. It is hardly a major work or required reading. It is, however, an unusual portrayal of turnabout in international relations.

COL W. D. Bushnell, USMC, 9th Marine Corps District Headquarters, Shawnee Mission, Kansas

GORBACHEV'S RETREAT: The Third World by Melvin A. Goodman. 206 pages. Praeger Publishers, New York. 1991. \$42.95.

People may be wary of recently published books about the Gorbachev era and the future of the Soviet Union. Events of August 1991 understandably outdated many books before they even reached bookshelves. Melvin A. Goodman's *Gorbachev's Retreat*, though, does not fall into this category. It focuses on significant changes in the Soviet Union's perspective regarding Third World countries since Mikhail Gorbachev came to power.

That there have been major shifts in Soviet interests and foreign policy regarding Third World countries over the past five years is beyond dispute. The Soviets have not only withdrawn from Afghanistan; they have also reduced their military presence and aid in virtually all regions of the world. Gradually, they have improved relations with a host of nations such as Israel, South Korea and South Africa despite many years of outspoken and covert support of opposition factions.

Goodman feels that the change in policy was based primarily on the economic morass plaguing the Soviet Union. Gorbachev decided, at the outset, on fundamental changes in foreign policy to achieve a more stable international arena and to create a less threatening image of the Soviet Union so that it could better concentrate on improving the economy. The change in policy was also based on Gorbachev's interest in demilitarization at home and abroad. Toward those ends, his changes have led to declines in the status of the military, in its participation in foreign policy decision making and in overall Soviet defense spending and modernization.

Goodman begins his study with an overview of pre-Gorbachev Soviet policy and involvement in the Third World. Subsequent chapters focus on

changes in government decision making under Gorbachev; withdrawal from Afghanistan and ramifications on neighboring countries; limits of Soviet power in the Third World; implications of Gorbachev's new political thought for regions near and far; power projection and crisis management under Gorbachev; military and economic aid pre- and post-Gorbachev; and the prospects for and basis of Soviet participation in the Third World in the 1990s. Throughout such chapters, Goodman addresses the Soviet Union's changed relationships with virtually all of its Third World partners. He credits Gorbachev with recognizing that the Soviet Union lacks an indispensable element of power with most of its "partners"—the ability to make sure they take Moscow's interest into account when making decisions. Consequently, to Moscow's frustration, many of these Third World partners have turned to the United States as well. Goodman forecasts more of the same retrenchment in future years, with the Soviets stressing cooperation over conflict as they try to mend their own economic situation.

Gorbachev's Retreat is quite interesting, particularly in view of events in the Soviet Union and the Middle East. It is well documented from a variety of secondary sources, and it concludes with a helpful bibliographic essay. Unfortunately, this book can also be aggravating. Chapters all too often appear as individual essays, rather than as chapters in a larger, unified study. This leads to occasional frustration regarding the relevance and repetition of some material. Additionally, subtitles within chapters often belie the discussions they introduce. Nevertheless, Goodman's study is worth reading, particularly for strategists and others interested in Soviet foreign policy.

LTC Kenneth L. Privratsky, USA, Hoover Institution, Stanford University, Stanford, California

THE CRISIS YEARS: Kennedy and Khrushchev, 1960-1963 by Michael R. Beschloss. 816 pages. HarperCollins, Publishers, New York. 1991. \$29.95.

This is a historical narrative that can be characterized as involving two "international political pugilists." The older is seasoned, wary, combative, ideologically committed and worried about domestic forces threatening his survival as the leader of the Soviet Union: Nikita Sergeyevich Khrushchev, chairman of the Council of Ministers and first secretary of the Soviet Communist Party. The other pugilist is young, inexperienced (though very much in touch with world affairs), barely elected to national leadership and a fresh symbol of American ideals: John Fitzgerald Kennedy, president of the United States. Their personalities and the vast re-

sponsibilities borne on these two leaders are clearly portrayed in this weighty book, thus providing a clearer definition of the factors affecting their behavior in different crises.

What makes this historical narrative so fascinating is that the reader gets a chance to observe the two pugilists' behavior in other than the public arena of international politics. The author provides us access to their private conversations with advisers, leaders and confidants, under differing circumstances and in a wide range of settings. The result is a more complete perspective of the two Cold War leaders than has been available, principally due to the recent availability of archival information.

On 16 September 1959, then Senator Kennedy was slated to meet Khrushchev along with other Foreign Relations Committee members. Kennedy arrived late, which did not go unnoticed by Khrushchev. Upon being introduced to Kennedy after the meeting, Khrushchev said, "I've heard a lot about you. People say you have a great future ahead of you." To a colleague later, Kennedy stated, "It was very important to see Khrushchev in the flesh," thus possibly portending the future.

The public and private remarks and feelings of the two leaders, their aides and interlocutors are captured throughout this work and are invaluable for refining one's grasp of the major and minor personalities and their decisions and actions during the crises over Berlin, Cuba, Southeast Asia and nuclear weapons testing. In particular, Khrushchev becomes a more complete personality. At the same time, the reader is struck by the extent of Kennedy's direct exposure to and knowledge of world affairs long before he became president. Interestingly, each chapter of the book is titled using a quotation of a significant and often personal remark linked to a major world event.

The author's source material includes primary and secondary materials, as well as manuscript collections, records of conferences, interviews and oral histories; extensive source information is included in chapter notes, which is particularly useful in understanding the sources of personal quotes of the major actors. Beschloss has written other books on Kennedy and Khrushchev. He has been a scholar at the Harvard Russian Research Center, Smithsonian Institution and St. Anthony's College, Oxford. The thoroughness of his research and painstaking attention to detail make this book a treasure of information about two of the most significant leaders of the Cold War. The book will be of special value to the reader who is familiar with the period and is seeking fresh information.

**COL James D. Blundell, USA,
Retired, Arlington, Virginia**

February 1942 was among the darkest periods of World War II as American forces were on the defensive throughout the world. Banners such as this, a white shield, with a blue star for each service member in harm's way, red border and edged at the bottom with gold fringe, began to appear in parlor windows across the country.

The banner's origin dates from the commercial practices of five-and-dime stores during World War I, when a banner was sold to mothers and sweethearts who had a loved one serving overseas. During World War II, shops and businesses sold or gave away lapel pins, badges and other jewelry with variations on this same design. In addition, the practice of replacing the blue-star banner by one with a gold star on notification of a service member's death became commonplace.

The blue star was the yellow ribbon of its day, the very visible symbol of patriotism and public support displayed by a nation determined to prevail over the Axis.

